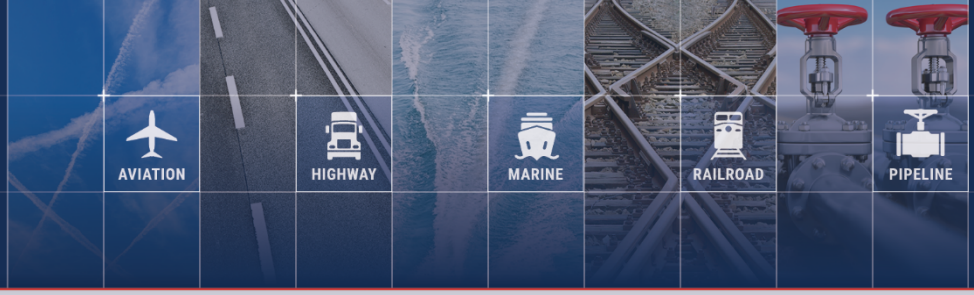

Aviation Investigation Final Report

Location:	Cisco, Georgia	**Accident Number:**	ERA24LA267
Date & Time:	June 18, 2024, 13:30 Local	**Registration:**	N72BM
Aircraft:	GARLICK HELICOPTERS INC OH-58A+	**Aircraft Damage:**	Substantial
Defining Event:	Unknown or undetermined	**Injuries:**	1 Minor
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The pilot of the helicopter was performing an aerial application flight. He reported that, while taking off after loading chemical for the third application flight of the day, the helicopter felt “heavy,” but all the engine instruments were in the normal operating range, so he continued the flight.

During the first teardrop turn back to the field, the engine rpm dropped and he saw that the red “engine out” light was illuminated. The pilot immediately looked for a place to land and tried to land between two trees. The helicopter contacted the trees and rolled over, coming to rest inverted and resulting in substantial damage to the main rotor blades and tail rotor assembly. Examination of the engine and a successful engine test run did not reveal any anomalies that would have precluded normal operation. Based on the available information, the reason for the loss of engine power could not be determined.

Probable Cause and Findings

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

A reported total loss of engine power for reasons that could not be determined.

Findings

Not determined	(general) - Unknown/Not determined
Aircraft	(general) - Unknown/Not determined

Factual Information

History of Flight

Maneuvering-low-alt flying	Unknown or undetermined (Defining event)
Autorotation	Collision with terr/obj (non-CFIT)

On June 18, 2024, about 1330 eastern daylight time, a Garlick Helicopters Inc, OH-58A+, N72BM, was substantially damaged when it was involved in an accident near Cisco, Georgia. The pilot sustained minor injuries. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 137 aerial application flight.

According to the pilot, he departed from Greensboro, Georgia, at 1043 to spray a field in Cisco, Georgia. After the 1.15-hour flight to the field, he landed, shut down the engine, and spoke to the landowner about what was to be sprayed and what was to be avoided. The pilot topped off the helicopter with fuel from a fuel truck. The landowner then flew around the field with the pilot so he could point out the different areas of concern. After the observation flight, the pilot loaded 40 gallons of chemicals and sprayed the first part of the field, which took about 8 minutes. The pilot returned and loaded another 50 gallons of chemicals while the engine remained operating. The pilot returned to the field and sprayed all 50 gallons.

The pilot again loaded the helicopter with 50 more gallons of chemicals. During the subsequent liftoff, the helicopter felt “heavy,” but all the engine instruments were in their normal operating ranges, so he continued the flight. During the first teardrop turn back to the field to spray, the engine rpm dropped, and the pilot saw that the red “engine out” light was illuminated. The pilot immediately looked for a place to land and tried to land between two trees. The helicopter contacted the trees and rolled over, which substantially damaged the tail rotor assembly and main rotor blades.

The helicopter displayed damage consistent with near-vertical impact, resulting in extensive damage to the front right side of the cockpit and aft lower fuselage areas, as well as the under fuselage-mounted chemical hopper. The tail boom was fractured aft of the fuselage attachment. The rotor head remained attached to the mast. The skids remained attached to the fuselage and were partially fractured and splayed outward on the right side. The main rotor blades remained attached to the rotor head but were fractured at different points along the length of the blades. The tail rotor assembly and portions of the blades remained attached to the tail rotor gearbox and tail boom mounts. The fuel cap remained in place at the fuel filler port. The fuel bladder was not punctured and an unquantified amount of fuel was observed in the tank such that the fuel boost pump was fully submerged.

The drive shaft assembly had fractured at the flex-straps connecting the drive shaft to the main rotor transmission. The drive shaft assembly also disconnected at the engine side bolted connection to the freewheeling unit. Heavy rotational scoring was noted at several external locations along the length of the drive shaft. Rotational scoring and extensive gouging was noted on the main rotor transmission strike plate located immediately below the drive shaft flange connection to the transmission. The freewheeling unit was tested for proper functionality by checking its interactive rotation with the power turbine N2 rotor. The freewheel unit assembly and internal sprag-clutch bearing performed as expected. The output shaft assembly was disengaged and removed from the engine gearbox. All components appeared unremarkable and did not exhibit any anomalous damage.

The engine was removed and sent to the manufacturer for further examination. Visual examination of the engine revealed that the compressor front support and 1st stage blades sustained heavy impact damage during the accident sequence. The 4th stage power turbine blades appeared undamaged and void of thermal distress, as did the surrounding turbine sections and exhaust plenum.

The engine was placed in a test cell and successfully started, but was unable to achieve more than 115 ft-lbs of torque before the engine began to surge due to the damaged compressor blades. The compressor module was replaced with a serviceable module and the engine was started again. The engine successfully completed ground idle, flight-idle, max-continuous-power, and takeoff power runs.

Pilot Information

Certificate:	Commercial	**Age:**	33,Male
Airplane Rating(s):	None	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	June 5, 2024
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	March 4, 2023
Flight Time:	1415 hours (Total, all aircraft), 75 hours (Total, this make and model), 1334 hours (Pilot In Command, all aircraft), 31 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	GARLICK HELICOPTERS INC	**Registration:**	N72BM
Model/Series:	OH-58A+ NO SERIES	**Aircraft Category:**	Helicopter
Year of Manufacture:	1972	**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	72-21248
Landing Gear Type:	High skid	**Seats:**	2
Date/Type of Last Inspection:	June 9, 2024 100 hour	**Certified Max Gross Wt.:**	3200 lbs
Time Since Last Inspection:		**Engines:**	1 Turbo shaft
Airframe Total Time:	9118 Hrs	**Engine Manufacturer:**	Rolls Royce
ELT:	Not installed	**Engine Model/Series:**	T63-A-720
Registered Owner:	VERTICAL VEGETATION MANAGEMENT LLC	**Rated Power:**	420
Operator:	VERTICAL VEGETATION MANAGEMENT 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:	DNN,710 ft msl	**Distance from Accident Site:**	13 Nautical Miles
Observation Time:	13:35 Local	**Direction from Accident Site:**	211°
Lowest Cloud Condition:	Scattered / 7000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 31000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	130°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.17 inches Hg	**Temperature/Dew Point:**	30°C / 19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Cisco, GA	**Type of Flight Plan Filed:**	None
Destination:	Cisco, GA	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	34.910667,-84.73175

Administrative Information

Investigator In Charge (IIC):	Boggs, Daniel
Additional Participating Persons:	Mike Jones; FAA/FSDO; College Park, GA Jack Johnson; Rolls Royce; Indianapolis, IN
Original Publish Date:	January 22, 2025
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=194502