Aviation Investigation Final Report

Location:	Laureles, Texas	**Accident Number:**	CEN16LA213
Date & Time:	June 9, 2016, 16:30 Local	**Registration:**	N6203N
Aircraft:	Bell 47G 5	**Aircraft Damage:**	Substantial
Defining Event:	Miscellaneous/other	**Injuries:**	1 Minor
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The commercial pilot reported that, while conducting a spray pass, he pulled on the helicopter's collective, and the rotor speed dropped. He lowered the collective, applied maximum throttle, and pulled on the collective again, but the rotor speed continued to drop. He then attempted to land in a nearby yard, but the tailboom struck a tree, and the helicopter then flipped on its right side.

A witness, who was an experienced agricultural helicopter pilot, reported that he had flown with the accident pilot for about 12 hours in the accident helicopter, which was a piston engine-powered helicopter that did not have a throttle governor, to familiarize him with managing the throttle. He stated that the accident pilot's previous experience was in turbine-powered helicopters that had a throttle governor. The witness stated that he was in the field watching the accident pilot perform spraying operations. The pilot made a downwind pass in the field in a tight area. He said that, when the pilot pulled up to climb above the trees at the end of the pass, he heard the engine "bog down" and that he thought that the pilot had pulled the collective without adding throttle.

A postaccident examination of the helicopter and a test run of the engine revealed no preaccident mechanical malfunctions or failures that would have prevented normal operation. Based on this evidence, it is likely that the pilot failed to apply engine power when he applied collective input, which resulted in a loss of rotor speed and an exceedance of the helicopter's performance capability.

Probable Cause and Findings

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

The pilot's failure to apply additional engine power when he applied collective input, which led to a loss of rotor speed and the exceedance of the helicopter's performance capability.

Findings

Aircraft	Prop/rotor parameters - Not attained/maintained
Aircraft	Powerplant parameters - Not attained/maintained
Personnel issues	Lack of action - Pilot
Personnel issues	Use of equip/system - Pilot
Environmental issues	Tree(s) - Contributed to outcome

Factual Information

History of Flight

Maneuvering-low-alt flying	Miscellaneous/other (Defining event)

On June 9, 2016, about 1630 central daylight time, a Bell 47G-5 helicopter, N6203N, was substantially damaged during a loss of control while performing agricultural spraying operations near Laurels, Texas. The pilot received minor injuries. The helicopter impacted a tree and the ground and sustained damage to the fuselage, landing gear, and main rotor system. The aircraft was registered to and operated by Hendrickson Flying Service, Inc. under the provisions of 14 Code of Federal Regulations Part 137 as an aerial application flight. Visual meteorological conditions prevailed for the flight, which was not on a flight plan. The local flight originated at an unconfirmed time.

The pilot reported that while conducting a spray pass, he pulled on the collective and the rotor speed dropped. He said that he lowered the collective, applied maximum throttle and pulled on the collective again but the rotor speed continued to drop. He then attempted a landing in a yard next to a house where the tail boom struck a tree and the helicopter came to rest on its right side.

A witness, who was an experienced agricultural helicopter pilot reported that he had flown with the accident pilot for about 12 hours in the accident helicopter. He stated that the accident pilot's previous experience was in turbine powered helicopters with governed throttle. He flew with him to familiarize him with managing throttle on the piston engine powered Bell 47 that did not have a throttle governor. The witness stated that he was in the field watching the accident pilot perform spraying operations. The pilot made a downwind pass in the field in a tight area where the helicopter was in and out of the field quickly. He said that when the pilot pulled up for the trees at the end of the pass he heard the engine "bog down." He said that he thought that the pilot had pulled collective without adding throttle.

A postaccident examination of the helicopter and a satisfactory test run of the engine disclosed no preaccident mechanical malfunctions or anomalies that would have prevented normal operations.

Pilot Information

Certificate:	Commercial; Private	**Age:**	57,Male
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:**	March 15, 2016
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N6203N
Model/Series:	47G 5 5	**Aircraft Category:**	Helicopter
Year of Manufacture:	1969	**Amateur Built:**	
Airworthiness Certificate:	Normal; Restricted (Special)	**Serial Number:**	7875
Landing Gear Type:	N/A; Skid	**Seats:**	3
Date/Type of Last Inspection:	April 26, 2016 100 hour	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	9665 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:	Not installed	**Engine Model/Series:**	VO-435 B1A
Registered Owner:	HENDRICKSON FLYING SERVICE INC	**Rated Power:**	260 Horsepower
Operator:	HENDRICKSON FLYING SERVICE INC	**Operating Certificate(s) Held:**	Agricultural aircraft (137)
Operator Does Business As:		**Operator Designator Code:**	HNKG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	HRL,36 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	21:52 Local	**Direction from Accident Site:**	310°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	60°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.84 inches Hg	**Temperature/Dew Point:**	33°C / 24°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Laureles, TX	**Type of Flight Plan Filed:**	None
Destination:	Laureles, TX	**Type of Clearance:**	None
Departure Time:		**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:**	26.109167,-97.494163(est)

Administrative Information

Investigator In Charge (IIC):	Brannen, John
Additional Participating Persons:	Brian Fricker; FAA - San Antonio FSDO; San Antonio, TX
Original Publish Date:	December 12, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=93354