Aviation Investigation Final Report

Location:	Albany, Texas	**Accident Number:**	CEN18LA069
Date & Time:	January 8, 2018, 13:45 Local	**Registration:**	N797JR
Aircraft:	ROBINSON HELICOPTER COMPANY R44 II	**Aircraft Damage:**	Substantial
Defining Event:	Unknown or undetermined	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The commercial pilot stated that he was using the helicopter to round up cattle. He applied power to stabilize in a hover about 50 ft above the ground when he heard a single loud bang and "felt it in the pedals." The helicopter spun to the right, and the pilot applied full left pedal, which had no effect on the helicopter. The pilot stated that after about two spins, he entered an autorotation to remove torque from the rotor system. The helicopter contacted trees as it descended to the ground and came to rest upright with the tailboom separated.

Postaccident examination of the wreckage did not reveal any evidence of mechanical malfunctions or failures of the main rotor and tail rotor systems that would have precluded normal operation; thus, the reason for the loss of control could not be determined.

Probable Cause and Findings

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

A loss of helicopter control for reasons that could not be determined because postaccident examination did not reveal any evidence of mechanical malfunctions or failures of the main rotor and tail rotor systems that would have precluded normal operation.

Findings

Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Maneuvering-hover	Unknown or undetermined (Defining event)
Autorotation	Hard landing

****This report was modified on 5/15/2019. Please see the docket for this accident to view the original report.****

On January 8, 2018, at 1345 central standard time, a Robinson R44 helicopter, N797JR, collided with trees and the terrain during an autorotation near Albany, Texas. The commercial pilot was not injured. The helicopter was substantially damaged. The helicopter was registered to S2 Helicopter Services and was operated by an individual as a Title 14 *Code of Federal Regulations* Part 91 personal flight. Day visual meteorological conditions prevailed. The flight was not operated on a flight plan. The local flight originated from a ranch in Albany, Texas, at 1310.

The pilot stated he was using the helicopter to roundup cattle when the accident occurred. He reported he applied power to stabilize in a hover about 50 ft above the ground, when he heard a single loud bang and "felt it in the pedals." The helicopter spun to the right and the pilot applied full left pedal which had no effect. The pilot stated that after about 2 spins, he entered an autorotation to remove torque from the rotor system. The helicopter contacted trees as it descended to the ground. The helicopter came to rest upright with the tail boom separated.

The pilot reported that he was not sure if there was a "mechanical problem" or not. His recommendation was "Conduct a better clearing turn to ensure that nothing was around including animals/birds" and to "maintain more forward airspeed in case of emergency."

The helicopter was sitting upright on the skids. The fuselage was intact and the tailboom was separated just forward of the empennage. Minor crushing damage was visible on the right side of the helicopter aft of the cabin area. Crush damage was visible on the left side of the helicopter above the front and rear skid struts. The main rotor blades, main rotor blade hub, and main rotor mast were intact. One of the main rotor blades exhibited minor bending near the outboard section of the blade. The other blade had a hole in the blade near the tip and the leading edge of the blade at the tip was pulled away from the remainder of the blade.

The empennage and tailrotor were separated from the tailboom. The tailrotor drive shaft separated at the aft flex plate. The drive shaft remained connected to the clutch assembly. The main rotor blades turned when the tailrotor drive shaft was rotated by hand. Ratchet marks were visible inside the tailboom near the aft flex plate. Corresponding damage was visible on the flex plate and drive shaft.

The trailing edge of the lower vertical stabilizer contained impact damage to the rear edge of the surface, pushing the skin forward toward the leading edge. The tail rotor blade assembly remained attached to

the tail rotor gearbox. One tail rotor blade was bent outward 90 ° at the blade root. The other blade was bent out about 20° the blade root. The blade was free to turn when rotated by hand.

Pilot Information

Certificate:	Commercial	**Age:**	28,Male
Airplane Rating(s):	None	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	Instrument helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	July 18, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	March 11, 2016
Flight Time:	3000 hours (Total, all aircraft), 1700 hours (Total, this make and model), 2450 hours (Pilot In Command, all aircraft), 120 hours (Last 90 days, all aircraft), 29 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	ROBINSON HELICOPTER COMPANY	**Registration:**	N797JR
Model/Series:	R44 II II	**Aircraft Category:**	Helicopter
Year of Manufacture:	2006	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	11030
Landing Gear Type:	N/A; Skid	**Seats:**	4
Date/Type of Last Inspection:	June 3, 2017 Annual	**Certified Max Gross Wt.:**	2120 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2058 Hrs	**Engine Manufacturer:**	LYCOMING
ELT:	Installed, not activated	**Engine Model/Series:**	IO-540
Registered Owner:	On file	**Rated Power:**	0 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	BKD,1284 ft msl	**Distance from Accident Site:**	25 Nautical Miles
Observation Time:	19:55 Local	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Clear	**Visibility**	7 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.17 inches Hg	**Temperature/Dew Point:**	16°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Albany, TX	**Type of Flight Plan Filed:**	None
Destination:	Albany, TX	**Type of Clearance:**	None
Departure Time:	13:10 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	32.729999,-99.309448(est)

Administrative Information

Investigator In Charge (IIC):	Sullivan, Pamela
Additional Participating Persons:	Anthony Leinneweber; FAA; Lubbock, TX
Original Publish Date:	July 8, 2019
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=96581