



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	Canyon Lake, Texas	<b>Accident Number:</b>	DFW08CA177
<b>Date &amp; Time:</b>	July 5, 2008, 16:00 Local	<b>Registration:</b>	N804DF
<b>Aircraft:</b>	Robinson R44 II	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of tail rotor effectiveness	<b>Injuries:</b>	1 Minor, 2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Aerial observation		

## Analysis

The commercial pilot was conducting a photo flight with himself and two passengers in the four seat helicopter. The helicopter had been in a zero airspeed out of ground effect hover at approximately 40 to 50 feet above the ground for about 15 seconds when the pilot applied power to begin a vertical climb. According to the pilot, he then suddenly and without warning lost directional control, the helicopter began to spin nose right, and his application of full left pedal had no effect. The pilot initiated an autorotation and the helicopter landed hard on rough rocky sloping terrain between several trees. The crash caused substantial damage to the fuselage and airframe when the left skid gear partially collapsed and penetrated into the left rear passenger cabin floor area. The upper pylon was noticeably bent and wrinkled, and both main rotor blades were damaged. An on-scene investigation by an FAA maintenance inspector confirmed continuity and no apparent damage to the flight controls. There was no post-crash fire and the pilot and front seat passenger reported no injuries, but the left rear seat passenger suffered minor injuries and had to be carried out of the aircraft. The pilot reported the surface winds were light and variable, visibility 10 statute miles with scattered clouds at 3,000 feet, a temperature of 88 degrees, and an altimeter setting of 30.01 inches of mercury.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A total loss of tail rotor effectiveness. Contributing to the accident was the pilot's improper decision to operate inside the height velocity curve.

## Findings

<b>Personnel issues</b>	Decision making/judgment - Pilot
<b>Aircraft</b>	Prop/rotor parameters - Capability exceeded
<b>Aircraft</b>	(general) - Not specified

## Factual Information

### History of Flight

<b>Maneuvering-hover</b>	Loss of tail rotor effectiveness (Defining event)
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### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	60, Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	November 1, 2007
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	October 1, 2007
<b>Flight Time:</b>	731 hours (Total, all aircraft), 113 hours (Total, this make and model), 569 hours (Pilot In Command, all aircraft), 49 hours (Last 90 days, all aircraft), 21 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Robinson	<b>Registration:</b>	N804DF
<b>Model/Series:</b>	R44 II	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	11265
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	June 1, 2008 100 hour	<b>Certified Max Gross Wt.:</b>	2500 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	421 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	IO-540-AE1A5
<b>Registered Owner:</b>	Royal Aeronautical Services USA LLC	<b>Rated Power:</b>	205 Horsepower
<b>Operator:</b>	Helicopter Tours of Texas	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:	3000 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/ None	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.01 inches Hg	Temperature/Dew Point:	31°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Gruene, TX	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	15:46 Local	Type of Airspace:	

## Airport Information

Airport:	CANYON LAKE 34TS	Runway Surface Type:	
Airport Elevation:	940 ft msl	Runway Surface Condition:	
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 Minor, 1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor, 2 None	Latitude, Longitude:	29.916944,-98.305557

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Latson, Thomas
<b>Additional Participating Persons:</b>	Faye S Makarsky; San Antonio FSDO
<b>Original Publish Date:</b>	August 28, 2008
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	This accident report documents the factual circumstances of this accident as described to the NTSB.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=68395">https://data.nts.gov/Docket?ProjectID=68395</a>

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