



# Aviation Investigation Final Report

---

<b>Location:</b>	Horseshoe Bay, Texas	<b>Accident Number:</b>	DFW08CA082
<b>Date &amp; Time:</b>	March 15, 2008, 18:00 Local	<b>Registration:</b>	N489TJ
<b>Aircraft:</b>	Robinson R22 BETA	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Hard landing	<b>Injuries:</b>	1 Minor, 1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

---

## Analysis

During a flight review the private pilot completed three practice autorotations to an unimproved open field, terminating in a power recovery. During the fourth practice autorotation the pilot could not get the engine to respond during the power recovery. The flight instructor took over the controls, at about 100 feet above ground level, and completed the autorotation to a touchdown. According to the flight instructor, he had to flare steeply to avoid a tree line. The helicopter touched down on the heels of the skids and tail stinger. The aft section of the tail boom separated from the helicopter when the main rotor blades contacted the tail boom and the tail rotor assembly. The pilot said the flight instructor initiated an aggressive flare and struck the ground hard, and that there was a violent shudder as the helicopter leveled the skids. The helicopter came to rest upright. There was no post crash fire. The pilot reported a minor injury and the flight instructor reported no injuries. An examination of the helicopter's engine by Federal Aviation Administration (FAA) inspectors did not reveal any pre-impact anomalies; additionally they reported that more than a half tank of fuel remained in the helicopter at the accident site.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The certified flight instructor's delay in taking remedial action which resulted in an unsuccessful autorotation.

## Findings

**Personnel issues**

Delayed action - Pilot

## Factual Information

### History of Flight

<b>Autorotation</b>	Hard landing (Defining event)
---------------------	-------------------------------

### Flight instructor Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	19, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	
<b>Instructor Rating(s):</b>	Helicopter	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	June 1, 2007
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	February 1, 2008
<b>Flight Time:</b>	455 hours (Total, all aircraft), 163 hours (Total, this make and model), 26 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	59, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	Glider; Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 With waivers/limitations	<b>Last FAA Medical Exam:</b>	January 1, 2008
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	March 1, 2006
<b>Flight Time:</b>	1050 hours (Total, all aircraft), 238 hours (Total, this make and model), 864 hours (Pilot In Command, all aircraft), 4 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Robinson	<b>Registration:</b>	N489TJ
<b>Model/Series:</b>	R22 BETA	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	3024
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	November 1, 2007 Annual	<b>Certified Max Gross Wt.:</b>	1370 lbs
<b>Time Since Last Inspection:</b>	7 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	660 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-360-J2A
<b>Registered Owner:</b>	Rototool LLC	<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>	Kent Leighton	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KBMQ, 1092 ft msl	<b>Distance from Accident Site:</b>	14 Nautical Miles
<b>Observation Time:</b>	16:53 Local	<b>Direction from Accident Site:</b>	190°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility:</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	9 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	40°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.84 inches Hg	<b>Temperature/Dew Point:</b>	25°C / 3°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Marble Falls, TX	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Marble Falls, TX	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Horseshoe Bay 4XS7	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	1092 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Simulated forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Minor, 1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Minor, 1 None	<b>Latitude, Longitude:</b>	30.325834,-98.326942

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Aguilera, Jason
<b>Additional Participating Persons:</b>	Myron F Busboom; FSDO; San Antonio, TX
<b>Original Publish Date:</b>	April 30, 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=67674">https://data.nts.gov/Docket?ProjectID=67674</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).