Aviation Investigation Final Report

Location:	Horseshoe Bay, Texas	**Accident Number:**	DFW08CA082
Date & Time:	March 15, 2008, 18:00 Local	**Registration:**	N489TJ
Aircraft:	Robinson R22 BETA	**Aircraft Damage:**	Substantial
Defining Event:	Hard landing	**Injuries:**	1 Minor, 1 None
Flight Conducted Under:	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

Autorotation	Hard landing (Defining event)

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	19,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	June 1, 2007
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	February 1, 2008
Flight Time:	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

Certificate:	Private	**Age:**	59,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Glider; Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	January 1, 2008
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	March 1, 2006
Flight Time:	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

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

Meteorological Information and Flight Plan

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

Airport Information

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

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	Aguilera, Jason
Additional Participating Persons:	Myron F Busboom; FSDO; San Antonio, TX
Original Publish Date:	April 30, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=67674