



# National Transportation Safety Board Aviation Accident Final Report

---

<b>Location:</b>	Rockport, WA	<b>Accident Number:</b>	WPR13LA003
<b>Date &amp; Time:</b>	10/03/2012, 1340 PDT	<b>Registration:</b>	N80140
<b>Aircraft:</b>	ROBINSON HELICOPTER R22 BETA	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Miscellaneous/other	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Business		

---

## Analysis

The pilot reported that while maneuvering, the helicopter's clutch caution light illuminated. The pilot initiated a precautionary descent and began to slow the helicopter in an effort to locate a clearing in the trees. The clutch caution light was still on after 10 to 12 seconds, so the pilot instructed his passenger to pull the circuit breaker. The pilot spotted a clearing, and shortly thereafter the low rotor rpm warning light illuminated and the horn sounded. The pilot lowered the collective and headed for a landing spot. About 20 to 30 feet above ground level, the pilot flared the helicopter and used the remaining collective control input the last 3 to 5 feet. The helicopter subsequently landed hard in high brush surrounded by tall trees.

During the postaccident examination, bench testing of the clutch actuator revealed that the actuator operated normally and within specified limitations. Further examination of the actuator motor found no anomalies that would have precluded normal operation. The reason for the illumination of the clutch light could not be determined.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain sufficient rotor rpm during a precautionary landing, which resulted in a hard landing.

## Findings

---

<b>Aircraft</b>	Airspeed - Not attained/maintained (Cause)
<b>Personnel issues</b>	Aircraft control - Pilot (Cause)
<b>Environmental issues</b>	Tree(s) - Not specified

## Factual Information

On October 3, 2012, about 1340 Pacific daylight time, a Robinson R22 Beta helicopter, N80140, sustained substantial damage during a hard landing approximately 32 nautical miles north of Rockport, Washington in the North Cascades National Park. The pilot and passenger were not injured. The helicopter had substantial damage to the tailboom and fuselage. The helicopter was registered to Emerald City Aircraft Leasing and operated by Glacier Aviation Inc., of Burlington, Washington, under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed for the local flight, and no flight plan was filed. The flight originated from Skagit Regional Airport, Burlington, Washington about 1230.

The pilot reported that while maneuvering the clutch caution light illuminated and stayed on steady. The pilot initiated a descent and began to slow in an effort to locate a clearing in the trees. The light was still on after 10 to 12 seconds so the pilot instructed his passenger to pull the circuit breaker. A clearing was spotted and shortly thereafter the low rotor RPM warning light illuminated and the horn sounded. The pilot lowered the collective and headed for a landing spot. The pilot flared about 20 to 30 feet and utilized collective control the last three to five feet. The helicopter subsequently landed hard in high brush surrounded by tall trees.

A National Park Service representatives video taped the accident site on October 15, 2012 and sent to the National Transportation Safety Board, investigator-in-charge. The videos show the helicopter in high brush surrounded by tall trees. The video revealed the separation of the tailboom and damage to the tail rotor blades. The fuselage was buckled in several areas. The wreckage was relocated to a secure facility for further examination.

A follow-up examination of the wreckage was conducted and revealed that more of the fuselage was buckled. The left skid assembly was damaged and the rear cross-tube was bent. The drive belts were tight and properly positioned on both the upper and lower sheaves. The condition of the drive belts were unremarkable. The upper sheave had light marks along the outer circumference of the upper sheave. The drive belt contact areas on both sheaves were unremarkable. The clutch actuator was found in the extended position. The exposed actuator shaft was about 1 1/2 inches in length. The down limit screw was extended about 3/4-inches below its support bracket. The clutch actuator was operated from the 'Disengaged' to 'Engaged' switch positions. During the actuation of the clutch actuator the actuator motor made a noise that was not consistent in tone and had intermittent squealing throughout the actuator's full range of travel. The actuator moved in both directions from stop to stop. No other anomalies were noted.

The clutch actuator was removed and examined at the facilities of the Robinson Helicopter Company. The actuator was installed on test benches and operated normally and within limits. The actuator was disassembled and no anomalies were noted. The actuator motor was removed from the actuator and disassembled. The wiring grommet was damaged and was found in two parts. The magnets were removed and dusting was visible on the interior side of both magnets and on the rotor. The brushes and commutator showed signs of normal operation. The electrical cap assembly had dusting near the commutator area. The bearing on the output shaft side felt slightly rough when rotated by hand. No other anomalies were noted.

## History of Flight

Maneuvering	Miscellaneous/other (Defining event)
Landing-flare/touchdown	Hard landing

## Pilot Information

Certificate:	Private	Age:	39, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Without Waivers/Limitations	Last Medical Exam:	05/24/2012
Occupational Pilot:	No	Last Flight Review or Equivalent:	06/11/2011
Flight Time:	646 hours (Total, all aircraft), 198 hours (Total, this make and model), 553 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Manufacturer:	ROBINSON HELICOPTER	Registration:	N80140
Model/Series:	R22 BETA	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	1030
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	09/04/2012, 100 Hour	Certified Max Gross Wt.:	
Time Since Last Inspection:	48 Hours	Engines:	1 Reciprocating
Airframe Total Time:	7502 Hours	Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	O-320 SERIES
Registered Owner:	CARTER RICHARD K	Rated Power:	180 hp
Operator:	Glacier Aviation, Inc.	Air Carrier Operating Certificate:	None

## Meteorological Information and Flight Plan

Observation Facility, Elevation:	BVS, 144 ft msl	Observation Time:	1335 PDT
Distance from Accident Site:	50 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	237°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	18° C / 1° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	9 knots, 300°	Visibility (RVR):	
Altimeter Setting:	30.38 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration		
Departure Point:	Burlington, WA (KBVS)	Type of Flight Plan Filed:	None
Destination:	Burlington, WA (KBVS)	Type of Clearance:	None
Departure Time:	1230 PDT	Type of Airspace:	

## Airport Information

Airport:	Skagit Regional Airport (BVS)	Runway Surface Type:	
Airport Elevation:	144 ft	Runway Surface Condition:	
Runway Used:	N/A	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None		

## Administrative Information

Investigator In Charge (IIC):	Andrew L Swick	Adopted Date:	09/12/2013
Additional Participating Persons:	Frank Baker; FAA-FSDO; Renton, WA Thom Webster; Robinson Helicopter Company; Torrance, CA		
Publish Date:	09/12/2013		
Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=85254">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=85254</a>		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report.