



Aviation Investigation Final Report

Location:	Ennis, Montana	Accident Number:	SEA08LA043
Date & Time:	December 5, 2007, 16:00 Local	Registration:	N46969
Aircraft:	Bell UH-1B	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The pilot reported that he had flown the helicopter for five cycles throughout the day and landed at the landing zone to remove the long line. He was asked by ground personnel to reposition the helicopter from the landing zone to a nearby road in order for a snowplow to access the landing zone. Once the snowplow was done, the pilot began to reposition the helicopter back to the landing zone. As the helicopter lifted from the ground, it began to vibrate, and the vibration turned into a severe "hop or a bounce." The pilot lifted the helicopter to 15 feet; however, it continued to vibrate and subsequently began to nose over and become uncontrollable. The pilot then decided to force land the helicopter and touched down hard in two feet of snow, substantially damaging the doorframe. Inspection of the helicopter revealed that the collective control absolute friction was less than the manufacturer's specified setting and the maintenance manual indicated that if the friction is not set properly, a collective bounce could be induced. No other mechanical anomalies were identified and the reason for the loss of friction could not be determined. The operator's manual indicates that the severity of this oscillation is such that effective control of the helicopter may become difficult to maintain.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of collective control friction during takeoff that resulted in a collective bounce oscillation. Contributing to the accident was the pilot's failure to maintain aircraft control during the aborted takeoff and the snow covered terrain.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: TAKEOFF - ABORTED

Findings

1. (C) CONTROL FRICTION - DIMINISHED
2. (F) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: HARD LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

3. (C) TERRAIN CONDITION - SNOW COVERED

Factual Information

On December 5, 2007, at 1600 mountain standard time, a Bell UH-1B, N46969, impacted terrain approximately 33 miles southwest of Ennis, Montana. R & R Conner Aviation LLC was operating the helicopter under the provisions of 14 Code of Federal Regulations Part 91. The pilot was not injured; the helicopter sustained substantial damage. Visual meteorological conditions prevailed and no flight plan was filed for the local positioning flight.

According to the pilot, he had flown the helicopter for five cycles throughout the day (about 1.3 to 1.5 hours per cycle) and landed at the landing zone to remove the long line. The pilot was asked by ground personnel to reposition the helicopter from the landing zone to a nearby road, in order for a snowplow to access the landing zone. Once the snowplow was finished, the pilot began to reposition the helicopter to the landing zone. As the helicopter was lifting from the ground, it began to vibrate, that turned into a severe "hop or a bounce." The pilot climbed the helicopter to about 15 feet; however, it continued to vibrate. The helicopter then began to nose over and become uncontrollable. The pilot then decided to force land the helicopter. The helicopter landed hard in two feet of snow and sustained structural damage to the doorframe.

The Federal Aviation Administration inspector stated that following the accident, the minimum collective control friction was measured at 8 pounds, and the maintenance manual specified a friction between 14 to 16 pounds. The maintenance manual noted that if the friction is not set properly, a collective bounce (vertical oscillation) could be induced. No other mechanical anomalies were identified and the reason for the loss of friction could not be determined.

According to the Operator's Manual for the UH-1B helicopter, "Collective bounce is a pilot induced vertical oscillation that may be encountered in any flight condition by a rapid buildup of vertical bounce at approximately three cycles per second. The severity of this oscillation is such that effective control of the aircraft may become difficult to maintain."

Pilot Information

Certificate:	Commercial	Age:	39, Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	November 1, 2007
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	May 1, 2007
Flight Time:	1850 hours (Total, all aircraft), 1600 hours (Total, this make and model), 100 hours (Last 90 days, all aircraft), 80 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N46969
Model/Series:	UH-1B	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Restricted (Special)	Serial Number:	63-8548
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	December 1, 2007 Continuous airworthiness	Certified Max Gross Wt.:	8500 lbs
Time Since Last Inspection:		Engines:	1 Turbo shaft
Airframe Total Time:	16946.1 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	T53-13BA
Registered Owner:	R AND R Conner Aviat	Rated Power:	1500 Horsepower
Operator:		Operating Certificate(s) Held:	

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:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	-5°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Ennis, MT	Type of Flight Plan Filed:	None
Destination:	Ennis, MT	Type of Clearance:	None
Departure Time:	16:00 Local	Type of Airspace:	

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:	44.796112,-111.624725

Administrative Information

Investigator In Charge (IIC):	Dunks, Kristi
Additional Participating Persons:	Bryan Hanson; Federal Aviation Administration; Helena, MT
Original Publish Date:	May 28, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=67231

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](#).