

National Transportation Safety Board Aviation Accident Final Report

Location:	Isabel, South Dakota	Accident Number:	CEN12LA230
Date & Time:	April 5, 2012, 07:00 Local	Registration:	N104MH
Aircraft:	ROBINSON HELICOPTER R22 BETA	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (partial)	Injuries:	1 Serious, 1 None
Flight Conducted Under:	Part 91: General aviation - Other work use		

Analysis

While maneuvering at low altitude during a coyote hunting operation, the helicopter experienced a partial loss of engine power. The helicopter descended, impacted trees and terrain, and rolled on its right side. There was a minor fuel leak but no postimpact fire. A postaccident examination of the helicopter did not reveal any evidence of preimpact mechanical malfunction or failures that would have precluded normal operation. Based on the temperature and dew point about the time of the accident, the conditions were conducive to serious carburetor icing at any power setting. The pilot reported that he was unsure if he had used carburetor heat for the accident flight. Available evidence suggests that the engine partially lost power in the absence of carburetor heat while operating in conditions conducive to carburetor icing.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The partial loss of engine power due to carburetor ice.

Findings	
Environmental issues	Conducive to carburetor icing - Contributed to outcome
Aircraft	(general) - Not specified
Personnel issues	Lack of action - Pilot

Factual Information

On April 5, 2012, about 0700 mountain daylight time, a Robinson R22 Beta helicopter, N104MH, impacted terrain while maneuvering at low altitude near Isabel, South Dakota. The pilot was seriously injured and the passenger was not injured. The helicopter was substantially damaged. The helicopter was registered to and operated by the pilot, under the provisions of 14 Code of Federal Regulations Part 91, as a coyote hunting flight. Day visual meteorological conditions prevailed and no flight plan was filed. The flight departed Timber Lake Municipal Airport (D58), Timber Lake, South Dakota about 0630 for the local flight.

The pilot reported that he was flying about 50 to 70 knots southbound about 50 feet or more above ground level (AGL) with the surface wind out of the southeast. He made a sudden steep right turn to the west to intercept a coyote when he felt a loss of engine power, heard a "low rotor horn", and he immediately "dumped the collective". The helicopter impacted trees and terrain and rolled on its right side. There was a minor fuel leak, but no postimpact fire.

After the helicopter came to rest both occupants were able to extract themselves from the wreckage. The injured pilot stayed with the wreckage while the passenger walked several miles in the remote rural area to a residence to make a telephone call to 9-1-1 emergency.

A postaccident examination of the helicopter showed an adequate amount of uncontaminated fuel was present. The tips of the main rotor blades were curved up almost 90 degrees up from the horizontal. There was little evidence of rotational impact damage on the leading edges of the main rotor blades and tail rotor blades. No preimpact anomalies were found which would have prevented normal operation.

The nearest aviation weather reporting station was located at Mobridge Municipal Airport (KMBG), Mobridge, South Dakota, about 44 miles northeast from the accident site. At 0652, the KMBG automated surface observing system reported the following weather conditions: wind 130 degrees at 11 knots, visibility 10 miles, few clouds at 3,900 feet AGL, temperature 7 degrees Celsius, dew point minus 1 degree Celsius, and an altimeter setting of 29.87 inches of Mercury.

A weather reporting station was located at Timber Lake, South Dakota, about 15 miles northeast from the accident site. At 0700 the Timber Lake reporting station reported an average temperature of 37 degrees Fahrenheit, and an average humidity of 71 percent. The wind was reported as 8 miles per hour gusting to 15 miles per hour from 133 degrees.

The carburetor icing probability chart included in Federal Aviation Administration (FAA) Special Airworthiness Information Bulletin No. CE-09-35, Carburetor Icing Prevention, indicates that an aircraft operating in the ambient conditions at the time of the accident could expect a serious risk of accumulating carburetor ice at any power setting. The FAA Pilot's Handbook of Aeronautical Knowledge states that when conditions are conductive to carburetor icing that carburetor heat should be applied immediately and should be left on until the pilot is certain all the ice has been removed. Additionally, if ice is present the application of partial carburetor heat or leaving heat on for an insufficient time might aggravate the situation.

The pilot reported that he was unsure if he had used carburetor heat for the accident flight.

History of FlightMiscellaneous/otherPrior to flightMiscellaneous/otherManeuvering-low-alt flyingAbrupt maneuverManeuvering-low-alt flyingLoss of engine power (partial) (Defining event)Maneuvering-low-alt flyingLoss of control in flightUncontrolled descentCollision with terr/obj (non-CFIT)Post-impactRoll overPost-impactLanding gear collapse

Pilot Information

Certificate:	Commercial	Age:	40
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane single-engine	Toxicology Performed:	No
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	January 30, 2012
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	April 30, 2011
Flight Time:	(Estimated) 11690 hours (Total, all aircraft), 208 hours (Total, this make and model), 40 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	ROBINSON HELICOPTER	Registration:	N104MH
Model/Series:	R22 BETA	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	1843
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	January 1, 2012 Annual	Certified Max Gross Wt.:	1370 lbs
Time Since Last Inspection:	13 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	6197 Hrs at time of accident	Engine Manufacturer:	LYCOMING
ELT:	Not installed	Engine Model/Series:	0-320 SERIES
Registered Owner:		Rated Power:	131 Horsepower
Operator:		Operating Certificate(s) Held:	Agricultural aircraft (137)
Operator Does Business As:	AIR KRAFT SPRAYING	Operator Designator Code:	W7RG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KMBG,1716 ft msl	Distance from Accident Site:	44 Nautical Miles
Observation Time:	06:52 Local	Direction from Accident Site:	67°
Lowest Cloud Condition:	Few / 3900 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	11 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	130°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.87 inches Hg	Temperature/Dew Point:	7°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Timber Lake, SD (D58)	Type of Flight Plan Filed:	None
Destination:	Timber Lake, SD (D58)	Type of Clearance:	None
Departure Time:	06:35 Local	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 1 None	Latitude, Longitude:	45.267223,-101.38639(est)

Administrative Information

Investigator In Charge (IIC):	Latson, Thomas
Additional Participating Persons:	Gary L Soldwisch; FAA Rapid City FSDO; Rapid City, SD
Original Publish Date:	December 5, 2013
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=83307

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. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available <u>here</u>.