



National Transportation Safety Board Aviation Accident Final Report

Location:	OAKWOOD, OH	Accident Number:	IAD96LA088
Date & Time:	06/01/1996, 2100 EDT	Registration:	N2261U
Aircraft:	Brantly Helicopter B2B	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot reported that while he maneuvered during the approach to land, the helicopter experienced a total loss of engine power. When the power loss occurred, he '...nosed down and put the collective down...' to enter autorotation. He '...picked a spot [for landing] ... looked at the rotor RPM (RRPM), it was 320... [and] at 60 to 80 feet I pulled collective...' to begin deceleration. The helicopter struck the ground with a forward speed of 30 MPH with the tail skid striking the ground prior to the main gear. According to the pilot, the normal operating range for RRPM is 400-472 and that 400 RRPM was minimum for autorotation. The pilot did not possess a helicopter rating, but had received 5 to 6 hours of instruction in helicopters. He reported that he had flown 28 hours within the preceding six months, including 3 hours in the accident aircraft. Postaccident examination revealed that the fuel tank vent tube assembly was clogged with '...insect and nest remains... .' The most recent documented 100-hour maintenance inspection of the helicopter occurred on 5/18/70.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: a loss of engine power due to inadequate maintenance and inspection by the owner/operator which failed to detect the clogged fuel vent line, and the pilot's improper autorotation. A related factor was the pilot's inadequate training/familiarization with helicopter emergency procedures.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: MANEUVERING

Findings

1. (C) FUEL SYSTEM, VENT - BLOCKED(TOTAL)
2. (C) MAINTENANCE, INSPECTION - INADEQUATE - OTHER MAINTENANCE PERSONNEL

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: HARD LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

3. (C) AUTOROTATION - IMPROPER - PILOT IN COMMAND
4. (F) INADEQUATE TRAINING(EMERGENCY PROCEDURE(S)) - PILOT IN COMMAND

Factual Information

On June 1, 1996, at 2100 eastern daylight time, a Brantly B2B helicopter, N2261U, sustained substantial damage when it collided with terrain during a forced landing near Oakwood, Ohio. The certificated private pilot/helicopter owner received minor injuries and the one passenger sustained serious injuries. Visual meteorological conditions prevailed at the time of the accident, no flight plan was filed. The flight operated under 14 CFR Part 91. The helicopter departed private property adjacent to the accident site for a local orientation flight, exact time unknown.

The pilot reported that while he maneuvered during the approach to land, the helicopter experienced a total loss of engine power. The pilot said that when the power loss occurred, he "...nosed down and put the collective down..." to enter autorotation. He stated that when he attempted to enter autorotation the helicopter was at "...200-300 feet at around 40 MPH." He reported that he "...picked a spot [for landing]... looked at the rotor RPM (RRPM), it was 320...[and] at 60 to 80 feet I pulled collective..." to begin deceleration. The pilot said that the helicopter struck the ground with a forward speed of 30 MPH with the tail skid striking the ground prior to the main gear. According to the pilot, the normal operating range for RRPM is 400-472 and that 400 RRPM was minimum for autorotation. While discussing the attempted autorotation, the pilot said: "Normally, the rotor will speed up when you bring collective in."

The response to an engine power loss at altitude is described in a United States Army Training Circular as follows: "Upon detecting engine failure, the [pilot] will lower the collective to maintain rotor RPM within limits while adjusting the pedals to trim the aircraft. He will select a suitable landing area and, using turns and adjusting airspeed as necessary, maneuver the aircraft for a safe landing to the intended landing area. At approximately 100 feet AGL, apply aft cyclic to initiate a smooth, progressive deceleration. Maintain aircraft alignment with the touchdown area by properly adjusting the pedals and cyclic. Adjust the collective as necessary to prevent excessive rotor RPM. At approximately 15 feet AGL, apply sufficient collective to control the rate of descent and ground speed. Adjust the cyclic to attain a landing attitude, and apply collective as necessary just prior to touchdown to cushion the landing." Excerpts from the referenced publication (United States Army Training Circular No. 1-211: Aircrew Training Manual Utility Helicopter p. 6-76, 9 December 1992) are appended.

The pilot reported that he "...lost fuel pressure which resulted in engine failure." A postaccident inspection of the aircraft and its records by a Federal Aviation Administration (FAA) Aviation Safety Inspector revealed that the fuel overboard vent tube assembly was clogged. The FAA Inspector stated: "Cutting open the tube near the open overboard vent end...resulted in finding insect and nest remains that filled the tube. The vent tube was plugged in at least two places and a third plugged location was not opened up for examination." The examination of the aircraft records revealed that the most recent documented 100 hour inspection was accomplished on May 18, 1970.

The pilot reported that he did not possess a helicopter rating, and that he had received "...5 to 6 hours..." of instruction in helicopters. According to the Ohio State Highway Patrol Aircraft Crash Record, the pilot reported that he had flown 28 hours within the preceding six months, including about 3 hours in the accident aircraft.

Pilot Information

Certificate:	Private	Age:	38, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	05/17/1995
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Brantly Helicopter	Registration:	N2261U
Model/Series:	B2B B2B	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	423
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	05/18/1970, 100 Hour	Certified Max Gross Wt.:	1670 lbs
Time Since Last Inspection:	53 Hours	Engines:	1 Reciprocating
Airframe Total Time:	640 Hours	Engine Manufacturer:	Lycoming
ELT:	Not installed	Engine Model/Series:	VIO-360-A1A
Registered Owner:	C. W. BRIGHT	Rated Power:	180 hp
Operator:	RICK DOBBELAERE	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Bright
Observation Facility, Elevation:	FDY, 812 ft msl	Distance from Accident Site:	33 Nautical Miles
Observation Time:	2050 EDT	Direction from Accident Site:	100°
Lowest Cloud Condition:	Scattered / 25000 ft agl	Visibility	15 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	120°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	18° C / 7° C
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	0000	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 1 Minor	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	BRIAN C RAYNER	Report Date:	10/22/1996
Additional Participating Persons:			
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinquiry@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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