



National Transportation Safety Board Aviation Accident Final Report

Location:	COTTAGE GROVE, MN	Accident Number:	CHI00FA020
Date & Time:	11/01/1999, 1045 CST	Registration:	N565KS
Aircraft:	Bell 206B	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal

Flight Conducted Under: Part 91: General Aviation - Positioning

Analysis

The helicopter impacted terrain and was consumed by fire following a departure from cruise flight. Radar data indicated that the helicopter was proceeding on a heading of 103 degrees at an altitude of 1,300 feet msl and ground speed of 116 knots. Winds were from 280 degrees at 16 knots with gusts of 25 knots. Witnesses reported that the helicopter was proceeding eastbound at a low altitude and 'made a nose dive to the ground.' The main rotor blade and tail rotor assembly sustained damage consistent with a tail rotor strike in a nose high clockwise rotation. Examination of the engine and transmission did not reveal any mechanical anomalies.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Undetermined.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings

1. (C) REASON FOR OCCURRENCE UNDETERMINED

Factual Information

HISTORY OF FLIGHT

On November 1, 1999, at 1045 central standard time, a Bell 206B, N565KS, operated by Elmo Air Center, Incorporated, was destroyed on impact with terrain in Cottage Grove, Minnesota. Visual meteorological conditions prevailed at the time of the accident. The CFR Part 91 positioning flight was not operating on a flight plan. The commercial pilot and commercial-rated pilot passenger were fatally injured. The flight departed South Saint Paul Municipal-Richard E. Fleming Field (SGS), South Saint Paul, Minnesota, at approximately 1040, en route to Austin Straubel International Airport (GRB), Greenbay, Wisconsin.

A witness reported "the helicopter appeared to be traveling quite fast and as it traveled along horizontally and proceeded eastbound, it suddenly made a nose dive to the ground."

A second witness reported "the helicopter appeared to be flying low, similar to that of a crop dusting plane. The witness described the descent of the helicopter as not a complete nosedive, but somewhat close to a nosedive."

PERSONNEL INFORMATION

The pilot was 33 years old and held a commercial pilot certificate with rotorcraft-helicopter, instrument-helicopter and airplane single engine land ratings. He received a second class medical with the limitation of "holder shall wear corrective lenses" on July 28, 1999. Logbook entries indicate that he accumulated a total flight time of 5,845.6 hours of which 3,531.4 hours were in helicopters.

The passenger was 28 years old and held a commercial pilot certificate with a rotorcraft-helicopter rating. He received a second-class medical certificate with a limitation "holder must wear corrective lenses for distant vision" on April 12, 1999. He reported a total flight time of 206 hours at the time of application of the medical certificate.

AIRCRAFT INFORMATION

The helicopter, serial number 056, accumulated a total airframe time of 6,724.6 hours at a 100-hour inspection on October 15, 1999. The Allison 250-C20B engine, serial number CAE831659, accumulated total time of 5,376.9 hours at a 100-hour inspection October 15, 1999.

METEOROLOGICAL INFORMATION

At 1034, SGS reported winds from 280 degrees at 16 knots gusting 25 knots.

WRECKAGE AND IMPACT INFORMATION

The main wreckage area was located approximately 6 miles east of SGS in a corn stubble field with east-west rows. The magnetic heading of the aircraft was 014 degrees. Approximately 70 feet forward of the helicopter's nose, on a magnetic heading of 017 degrees, there were two holes with two parallel rectangular ground scars. Each ground scar had a magnetic heading of 207 degrees. The easternmost ground scar was 3 feet in length and 4 inches in width. The westernmost rectangular ground scar was 1 foot 6 inches in length and four inches in width. A distance of 7 feet 2 inches separated both ground scars. Two ground slash markings, 3 and 4 feet in length, were located between and to the east of the main wreckage and the two parallel ground scars.

The cockpit section to the transmission was consumed by fire. Continuity of the transmission was established. A semicircular indentation was located approximately 20 inches from the tip of one of the main rotor blades. The indentation was of a diameter consistent with that of the tail rotor drive shaft, which was fractured and bent approximately 90 degrees. The tail rotor drive shaft exhibited a 45-degree fracture. The vertical stabilizer section was bent in the upward direction of approximately 30 degrees. The left horizontal stabilizer exhibited lateral compression wrinkles and the tail section aft of the horizontal stabilizer was bent to the right about 30 degrees.

MEDICAL AND PATHOLOGICAL INFORMATION

Federal Aviation Administration (FAA) toxicological test results for the pilot and passenger were negative for all substances tested.

Autopsies of the pilot and passenger were conducted by the Ramsey County Medical Examiner's Office, Ramsey County, Minnesota.

TEST AND RESEARCH

Great circle distance from SGS to GRB was 210.3 nmi on a true heading of 94.4 degrees.

A plot of radar data is included in this report. The radar data indicated the following:

TIME	ALTITUDE	HEADING	SPEED	1041:09.279	1300
88	127	1041:13.904	1300	86	127
1041:23.219	1300	91	127	1041:27.778	1300
125	1041:32.464	1300	101	122	1041:37.091
106	119	1041:41.719	1200	103	116

There were no further radar track data reported after 1041:41.719.

The engine was examined during a teardown at Rolls Royce Allison under the supervision of the FAA. The engine fuel control and governor were examined at Honeywell under the supervision of the FAA. Examination of the engine and engine accessories did not reveal any preimpact failures and nothing was found to indicate the engine was not capable of producing power. The manufacturer's reports of these examinations are included in this report.

ADDITIONAL INFORMATION

The FAA, Bell Helicopter, and Rolls Royce were parties to the investigation.

Pilot Information

Certificate:	Commercial	Age:	33, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	07/28/1999
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	5927 hours (Total, all aircraft), 5777 hours (Pilot In Command, all aircraft), 74 hours (Last 90 days, all aircraft), 41 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N565KS
Model/Series:	206B 206B	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	056
Landing Gear Type:	Skid	Seats:	5
Date/Type of Last Inspection:	10/15/1999, 100 Hour	Certified Max Gross Wt.:	3200 lbs
Time Since Last Inspection:		Engines:	1 Turbo Shaft
Airframe Total Time:	6725 Hours	Engine Manufacturer:	Allison
ELT:		Engine Model/Series:	250-C20B
Registered Owner:	ELMO AIR CENTER, INCORPORATED	Rated Power:	420 hp
Operator:	ELMO AIR CENTER, INCORPORATED	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:	EAC HELICOPTERS, INCORPORATED	Operator Designator Code:	CPGA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	SGS, 0 ft msl	Distance from Accident Site:	6 Nautical Miles
Observation Time:	1034 CST	Direction from Accident Site:	270°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	16 knots / 25 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	280°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	9°C / -2°C
Precipitation and Obscuration:			
Departure Point:	SOUTH ST PAUL, MN (SGS)	Type of Flight Plan Filed:	None
Destination:	GREENBAY, WI (GRB)	Type of Clearance:	
Departure Time:	1040 CST	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	Unknown
Total Injuries:	2 Fatal	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	MITCHELL F GALLO	Report Date:	05/16/2001
Additional Participating Persons:	SAMUEL B WEATHERFORD; MINNEAPOLIS, MN SCOTT S SCHEURICH; INDIANAPOLIS, IN DAVE DOSKER; FORT WORTH, TX		
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 pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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