National Transportation Safety Board
Aviation Accident Data Summary

Location:	Baltimore, MD	**Accident Number:**	IAD01FA089
Date & Time:	08/01/2001, 1300 EDT	**Registration:**	N89FB
Aircraft:	Bell 206B	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Aerial Observation		

Analysis

The purpose of the helicopter flight was to take aerial photographs of a large airport expansion construction project. The helicopter approached the construction site in an out-of-ground-effect hover taxi, with a quartering left tailwind. The helicopter turned to the right, and slowed to a stationary hover about 250 feet above the ground with a direct tailwind. Once in a hover, the helicopter made a right, rapid 180-degree pedal turn around the mast, stopped momentarily, then initiated another rapid pedal turn to the right. The helicopter turned at a faster rate than the initial turn, and continued into a spinning, vertical descent to the ground. Examination of the helicopter revealed no mechanical anomalies. The collective was in the full up position, and the main rotor blades exhibited signatures consistent with low rotor rpm at ground contact. A review of the pilot's company flight records revealed he had 531 hours of total flight experience, 60 hours of which were in airplanes. The pilot had 87 hours of experience in make and model. A relative wind chart published by the manufacturer depicts a helicopter facing 360 degrees over a compass rose. One shaded area of the chart depicts winds from between 120 degrees and 240 degrees, at wind speeds above 5 knots and up to 17 knots. According to a note on the chart an unanticipated right yaw may occur when operating in the shaded areas of the chart. According to FAA Advisory Circular (AC) 90-95, "Any maneuver which requires the pilot to operate in a high power, low airspeed environment with a left crosswind or tailwind creates an environment where unanticipated right yaw may occur." The AC also advised of greater susceptibility for loss of tailrotor effectiveness in right turns and the phenomena may occur in varying degrees in all single main rotor helicopters at airspeeds less than 30 knots.

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The pilot's improper decision to maneuver in an environment conducive to a loss of tail rotor effectiveness, and his inadequate recovery from the resultant unanticipated right yaw.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: HOVER - OUT OF GROUND EFFECT

Findings
1. (F) WEATHER CONDITION - TAILWIND
2. (C) IN-FLIGHT PLANNING/DECISION - IMPROPER - PILOT IN COMMAND
3. (C) LOSS OF TAIL ROTOR EFFECTIVENESS - ENCOUNTERED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Findings
4. (C) REMEDIAL ACTION - INADEQUATE - PILOT IN COMMAND

Pilot Information

Certificate:	Commercial; Private	**Age:**	37
Airplane Rating(s):	Single-engine Land	**Instrument Rating(s):**	None
Other Aircraft Rating(s):	Helicopter	**Instructor Rating(s):**	None
Flight Time:	531 hours (Total, all aircraft), 87 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N89FB
Model/Series:	206B	**Engines:**	1 Turbo Shaft
Operator:	Helicopter Transport Services	**Engine Manufacturer:**	Allison
Operating Certificate(s) Held:	On-demand Air Taxi (135)	**Engine Model/Series:**	250-C20
Flight Conducted Under:	Part 91: General Aviation - Aerial Observation		

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	BWI, 146 ft msl	**Weather Information Source:**	Weather Observation Facility
Lowest Ceiling:	None	**Wind Speed/Gusts, Direction:**	6 knots / , Variable
Temperature:	27°C	**Visibility**	10 Miles
Precipitation and Obscuration:			
Departure Point:	Baltimore, MD (MTN)	**Destination:**	Baltimore, MD (BWI)

Airport Information

Airport:	BALTIMORE-WASHINGTON INTL (BWI)	**Runway Surface Type:**	Asphalt
Runway Used:	15R	**Runway Surface Condition:**	Dry
Runway Length/Width:	9519 ft / 150 ft		

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Latitude, Longitude:	39.184722, -76.677500		

Administrative Information

Investigator In Charge (IIC):	Brian C Rayner	**Adopted Date:**	04/15/2003
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.ntsb.gov/pubdms/.		

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