



National Transportation Safety Board Aviation Accident Data Summary

Location:	Memphis, TN	Accident Number:	ATL03FA115
Date & Time:	07/02/2003, 1005 CDT	Registration:	N36TL
Aircraft:	Beech 58P	Injuries:	2 Fatal, 2 Serious
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The airplane was on approach to runway 36R and had descended to approximately 10 to 15 feet above the runway. A witness reported the airplane then yawed left, rolled left, and collided with the ground inverted. Examination of the airframe, engines, and propellers revealed no evidence of mechanical malfunction. Both propellers exhibited twisting of the blades and chord wise gouges, and each propeller low pitch stop displayed an impression mark. Target separation analysis of the radar data for the accident airplane's approach to runway 36R showed that an Embraer ERJ 145 landed on runway 36C approximately 120 seconds before the accident airplane attempted to land on runway 36R. The last recorded horizontal separation between the two airplanes was 3.53 nautical miles. Radar data, wind data, and wake vortex characteristics were utilized to develop a ground track and wake vortex profile for the two airplanes. According to the study, "the wake vortex of the ... [Embraer ERJ 145] ... could have migrated toward the ... [Beech 58P's] flight path." The study also states, "[Federal Aviation Administration (FAA)] ... guidance suggests that a separation of 120 sec[onds] is sufficient for the wake to dissipate or move away from the runway. Furthermore, wake dissipation is enhanced in ground effect." According to FAA guidelines, for purposes of wake turbulence separation, runways 36R and 36C are considered as a single runway because of their proximity to each other, and the separation minima for a "small" aircraft (Beech 58P) following a "large" aircraft (Embraer ERJ 145) is four miles.

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be: An encounter with wake turbulence on approach, which resulted in the pilot's inability to maintain control and subsequent in-flight collision with the ground.

Findings

Occurrence #1: VORTEX TURBULENCE ENCOUNTERED
Phase of Operation: APPROACH

Findings

1. (C) WAKE TURBULENCE - ENCOUNTERED - PILOT IN COMMAND

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: APPROACH

Findings

2. (C) AIRCRAFT CONTROL - NOT POSSIBLE

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

3. TERRAIN CONDITION - RUNWAY

Pilot Information

Certificate:	Private	Age:	51
Airplane Rating(s):	Multi-engine Land; Multi-engine Sea; Single-engine Land; Single-engine Sea	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	Glider	Instructor Rating(s):	None
Flight Time:	3212 hours (Total, all aircraft), 95 hours (Total, this make and model), 3005 hours (Pilot In Command, all aircraft), 36 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	Registration:	N36TL
Model/Series:	58P	Engines:	2 Reciprocating
Operator:	David W. Cahill (president Wind Dancer DSC, Inc.)	Engine Manufacturer:	Teledyne Continental
Operating Certificate(s) Held:	None	Engine Model/Series:	TSIO-520-WB
Flight Conducted Under:	Part 91: General Aviation - Personal		

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KMEM, 341 ft msl	Weather Information Source:	Weather Observation Facility
Lowest Ceiling:	Broken / 2900 ft agl	Wind Speed/Gusts, Direction:	5 knots / , 330°
Temperature:	26° C	Visibility	10 Miles
Precipitation and Obscuration:			
Departure Point:	Tampa, FL (KTPF)	Destination:	Memphis, TN (KMEM)

Airport Information

Airport:	Memphis International Airport (KMEM)	Runway Surface Type:	Concrete
Runway Used:	36R	Runway Surface Condition:	Dry
Runway Length/Width:	9000 ft / 150 ft		

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	1 Fatal, 2 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Latitude, Longitude:	35.027778, -89.973889		

Administrative Information

Investigator In Charge (IIC):	Philip Powell	Adopted Date:	07/07/2005
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/ .		

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.