



National Transportation Safety Board Aviation Accident Final Report

Location:	Leesburg, VA	Accident Number:	NYC08LA099
Date & Time:	02/12/2008, 2055 EST	Registration:	N16DK
Aircraft:	BEEHCRAFT 390	Aircraft Damage:	Substantial
Defining Event:	Runway excursion	Injuries:	2 None
Flight Conducted Under:	Part 91: General Aviation - Business		

Analysis

The business jet touched down near the threshold of the 5,500-foot-long, asphalt runway, at an airspeed of 100 knots. The pilot reported the braking effectiveness as "adequate" initially, and as the airplane approached the mid-field position of the runway, the braking effectiveness decreased until it was "near nil," and the airplane was no longer decelerating. The pilot maneuvered the airplane off the left side of the runway to gain traction from the adjacent grass area, during which it impacted a drainage ditch, resulting in substantial damage to the airplane. The area off the end of the runway was an open field with no obstructions. Examination of the runway revealed it was covered in black ice, with a thin layer of water. The weather reported at the time of the accident included 5 miles visibility with light snow. An employee of the fixed base operator (FBO) at the airport reported that at the time of the accident the main ramp and taxiways were coated with 1/4 to 1/2 inch of ice from earlier precipitation. The airport manager reported that, about 1.5 hours prior to the accident, when he was leaving for the day, the forecast was for little or no precipitation and the temperature was expected to increase. However, the temperature decreased instead, resulting in the formation of ice on the runway. The airport manager reported at the time of the accident the north end of runway 17 was dry; however, the south end of runway 17 had "some ice on it." The normal procedure for the airport to treat ice on the runway was to issue a NOTAM to close the runway and deploy their ice melt product. Then, they would cancel the NOTAM and issue another one stating that ice is present on the runway. Because the temperature was forecast to rise and not fall, the airport did not use any ice melt product on the runway. Additionally the airport personnel did not have the equipment or training to issue braking action reports, nor was it required. The pilot reported no pre-impact mechanical deficiencies with the airplane.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The airplane's runway excursion during landing roll following an encounter with ice. Contributing to the accident was the ice-covered runway, and the airport personnel's lack of knowledge regarding the runway condition.

Findings

Personnel issues	Knowledge of meteorologic cond - Airport personnel (Factor)
Environmental issues	Snow/slush/ice covered surface - Ability to respond/compensate (Cause) Snow/slush/ice covered surface - Awareness of condition (Factor)

Factual Information

HISTORY OF FLIGHT

On February 12, 2008, at 2055 eastern standard time, a Beechcraft Model 390 (Premier I), N16DK, was substantially damaged while landing at the Leesburg Executive Airport (JYO), Leesburg, Virginia. The certificated private pilot and passenger were not injured. Visual meteorological conditions prevailed and an instrument flight rules (IFR) flight plan was filed for the flight which originated at the Beech Factory Airport (BEC), Wichita, Kansas. The business flight was conducted under the provisions of 14 Code of Federal Regulations Part 91.

According to the pilot, he made a normal approach to runway 17 at JYO, and touched down at the "beginning" of the runway at an airspeed of 100 knots. As the airplane touched down on the runway, the braking was "adequate," and the airplane decelerated "normally." At approximately the mid-field point, the effectiveness of the braking decreased until it was "near nil," and the airplane was no longer decelerating.

The pilot maneuvered the airplane off the left side of the runway to gain traction from the grass located between the runway and the parallel taxiway. The airplane maintained its heading approximately parallel to the runway, until it came to a stop past the departure end of runway 17. After exiting the airplane, the pilot noticed the left main landing gear had collapsed, and the left wing was resting on the grass. He also stepped onto the departure end of the runway and observed the runway covered in black ice, with a thin layer of water.

The pilot reported no pre-impact malfunctions with the airplane.

PILOT INFORMATION

The pilot held a private pilot certificate with ratings for airplane single-engine and multiengine land, instrument airplane, and rotorcraft-helicopter. He also held RA-390S and CE-525S type ratings. His most recent FAA second-class medical certificate was issued on December 6, 2007. At that time he reported 6,000 hours of flight experience.

AIRCRAFT INFORMATION

According to FAA records, the airplane was manufactured in 2001, and owned by the pilot. The airplane was a twin-engine airplane powered by two Williams FJ44 turbo-fan engines, and was not equipped with thrust reversers.

According to information provided by the aircraft manufacturer, and conditions applicable to the accident flight, the airplane flight manual (AFM), prescribed a Vref of 100 knots, with a required landing distance on an uncontaminated runway of approximately 2,714 feet.

The Airplane Flight Manual (AFM) Contaminated Runway Supplement stated "operations on runways contaminated with ice or wet ice are not recommended. A runway is considered as wet when there is sufficient moisture on the surface to cause it to appear reflective, but without significant areas of standing water." Using the supplement, the anticipated landing distance on a wet runway was calculated to be 3,343 feet.

According to the Aeronautical Information Manual Pilot/Controller Glossary, a runway, "is considered contaminated whenever standing water, ice, snow, slush, frost in any form, heavy rubber or other substances are present."

METEOROLOGICAL INFORMATION

Weather reported at JYO, at 2100, included calm wind, 5 miles visibility with light snow, overcast clouds at 1,100 feet, temperature -2 degrees Celsius (C), dew point -3 degrees C, and altimeter setting of 30.06 inches of mercury.

Weather reported at Dulles International Airport (IAD), 10 miles to the southeast, at 2052, included wind from 050 degrees at 4 knots, 10 miles visibility, a broken cloud layer at 20,000 feet, temperature 4 degrees C, dew point -3 degrees C, and altimeter setting of 30.15 inches of mercury.

AIRPORT INFORMATION

Leesburg Executive Airport was comprised of a single runway oriented in a 17/35 configuration. Runway 17 was a 5,500-foot-long and 100-foot wide, asphalt runway.

An employee of the fixed base operator (FBO) at the airport reported that at the time of the accident the main ramp and taxiways were coated with 1/4 to 1/2 inch of ice from earlier precipitation. The last aircraft to land prior to N16DK, was a Lear 40 that landed at 1820, uneventfully.

The airport manager reported at 1730, when he was leaving for the day, the forecast was for little or no precipitation and the temperature was expected to increase. However, the temperature decreased instead, resulting in the formation of ice on the runway. The airport manager reported at the time of the accident the north end of runway 17 was dry; however, the south end of runway 17 had "some ice on it."

The normal procedure for the airport to treat ice on the runway was to issue a NOTAM to close the runway and deploy their ice melt product. Then, they would cancel the NOTAM and issue another one stating that ice is present on the runway. Because the temperature was forecast to rise and not fall, the airport did not use any ice melt product on the runway.

The airport personnel did not have the equipment or training to issue braking action reports, nor was it required.

WRECKAGE INFORMATION

Examination of the airplane by a representative of the manufacturer revealed the left main landing gear punctured the wing, resulting in substantial damage to the wing. No preimpact mechanical deficiencies were identified.

Additionally, examination of the runway environment by a Federal Aviation Administration inspector revealed the airplane impacted a drainage ditch as it exited the left side of runway 17, which caused the damage to the airplane. The inspector reported the area off the end of runway 17 was an open field with no obstructions.

History of Flight

Landing-landing roll	Runway excursion (Defining event)
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Pilot Information

Certificate:	Private	Age:	56, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 With Waivers/Limitations	Last Medical Exam:	12/01/2007
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	6000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	BEECHCRAFT	Registration:	N16DK
Model/Series:	390	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	RB-19
Landing Gear Type:	Retractable - Tricycle	Seats:	
Date/Type of Last Inspection:		Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Turbo Fan
Airframe Total Time:		Engine Manufacturer:	Williams
ELT:		Engine Model/Series:	FJ44
Registered Owner:	DEKA Research & Development Corp	Rated Power:	
Operator:	DEKA Research & Development Corp	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	JYO, 389 ft msl	Observation Time:	2100 EST
Distance from Accident Site:		Direction from Accident Site:	
Lowest Cloud Condition:		Temperature/Dew Point:	-2° C / -3° C
Lowest Ceiling:	Overcast / 1100 ft agl	Visibility	5 Miles
Wind Speed/Gusts, Direction:	Calm	Visibility (RVR):	
Altimeter Setting:	30.06 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	Light - Snow		
Departure Point:	WICHITA, KS (BEC)	Type of Flight Plan Filed:	IFR
Destination:	Leesburg, VA (JYO)	Type of Clearance:	IFR
Departure Time:		Type of Airspace:	

Airport Information

Airport:	Leesburg Executive Airport (JYO)	Runway Surface Type:	Asphalt
Airport Elevation:	389 ft	Runway Surface Condition:	Ice; Wet
Runway Used:	17	IFR Approach:	Global Positioning System
Runway Length/Width:	5500 ft / 100 ft	VFR Approach/Landing:	Full Stop

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	39.077778, -77.557500

Administrative Information

Investigator In Charge (IIC):	Jill M Andrews	Adopted Date:	05/12/2009
Additional Participating Persons:	Barry Barbini; FAA/FSDO; Dulles, VA Paul Yoos; Hawker Beechcraft Corporation; Wichita, KS		
Publish Date:	05/12/2009		
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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