



# Aviation Investigation Final Report

<b>Location:</b>	Richmond, Indiana	<b>Accident Number:</b>	CEN19LA090
<b>Date &amp; Time:</b>	February 11, 2019, 10:07 Local	<b>Registration:</b>	N750TA
<b>Aircraft:</b>	Beech 400	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Runway excursion	<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 91: General aviation		

## Analysis

The flight crew was approaching the destination airport on an instrument flight rules cross-country flight in instrument meteorological conditions. The captain stated that, after visually acquiring the runway environment during the approach, he saw that the runway "had a very light coating of snow," but he chose to continue the approach and apply full thrust reversers and braking after touchdown. The cockpit voice recorder revealed that the first officer advised the captain that the airplane was high while on final approach. The airplane crossed the runway threshold at 150 knots, touched down about 3,100 ft along the 5,502-ft-long runway at 125 knots, continued down the remaining runway, through an antenna array, and across a road before coming to rest about 750 ft beyond the paved surface. The airplane's landing approach reference speed ( $V_{ref}$ ) was between 110 and 114 knots. On a dry runway with calm wind conditions, the airplane required between about 3,200 ft and 3,500 ft runway stopping distance after touchdown; on a runway contaminated with wet or compacted snow, this distance increased to 5,300 ft.

Although the captain reported that the engines shut down without his input following the accident, images from the accident site showed that the nose landing gear collapsed, deforming the surrounding structure, which included the area of the throttle quadrant. It is likely that the collapsed structure impacted the throttle quadrant and resulted in the engine shutdown. The captain reported that there were no other mechanical malfunctions or anomalies with the airplane.

The captain and first officer conducted a preflight inspection of the airplane and checked the weather several times on the morning of the flight. The captain reported that the weather conditions were improving, and he did not recall seeing any new NOTAMs regarding runway conditions.

The pilots' decision to continue the unstable approach and landing to the snow-covered runway despite that the distance available was inadequate resulted in the runway overrun; however, given the airplane's excessive approach speed and touchdown point over halfway down the runway, it is likely that the crew

would have been unable to stop the airplane on the remaining runway even if it had been uncontaminated.

## Probable Cause and Findings

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

The flight crew's decision to continue an unstable approach under conditions that exceeded the airplane's landing performance capabilities, which resulted in a runway overrun and impact with terrain.

### Findings

<b>Personnel issues</b>	(general) - Flight crew
<b>Aircraft</b>	(general) - Capability exceeded
<b>Environmental issues</b>	Tailwind - Effect on operation
<b>Environmental issues</b>	Snow/slush/ice covered surface - Effect on operation

## Factual Information

### History of Flight

Landing-landing roll	Runway excursion (Defining event)
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On February 11, 2019, about 1007 eastern standard time, a Beech 400A airplane, N750TA, was substantially damaged when it was involved in an accident near Richmond, Indiana. The two pilots and one passenger were uninjured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 business flight.

The captain stated that he reviewed the flight plan the night before and discussed with the first officer the possibility of having to cancel the flight due to weather conditions. He recalled that the cloud ceiling was 100 ft above ground level (agl) and visibility was 1/2 mile with fog and mist. He reviewed the NOTAMs and he did not recall any concerning runway conditions.

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The flight departed Waukesha County Airport (UES), Waukesha, Wisconsin, about 0917; throughout the flight, the crew continued to monitor the weather conditions at the destination. The captain stated that the reported conditions included 1.5 miles visibility, a cloud ceiling of 1,500 ft agl, wind from 090° at 4 kts, with fog and mist. The crew discussed the approach to runway 24 and the 4-knot quartering tailwind. During the approach, the first officer advised the captain that the airplane was high on final; the captain requested that the first officer configure the airplane for landing.

The captain reported that, as the destination, Richmond Municipal Airport (RID), Richmond, Indiana, came into view during the approach, the runway appeared to have a "very light coating of snow on it." The captain elected to land and apply full thrust reversers and braking. After touchdown, the captain asked the first officer about the spoilers, and the first officer confirmed that the spoilers were deployed. A few seconds later, the captain thought that the airplane was not slowing much and advised the first officer that the airplane was going to go off the end of the runway. The airplane continued off the end of the runway and across a road.

Data recorded by the airplane's G5000 avionics system showed that the airplane touched down about 10:06:58 at 129 kts and came to a stop about 10:07:25.

The captain reported no mechanical malfunctions of the airplane during the flight; however, he stated that the engines were not visibly damaged, and that they shut down uncommanded after the airplane came to rest. After the accident, the captain used his iPad to review the NOTAMs again. At that time, he saw that the airport was closed and that the runway condition codes were "3-3-3", i.e., braking

deceleration is noticeably reduced for the wheel braking effort applicer or direction control is noticeably reduced for each third of the runway.

### Pilot Information

<b>Certificate:</b>	Airline transport; Commercial; Flight instructor	<b>Age:</b>	62, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane single-engine	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Waiver time limited special	<b>Last FAA Medical Exam:</b>	August 13, 2018
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	June 18, 2018
<b>Flight Time:</b>	11915 hours (Total, all aircraft), 718 hours (Total, this make and model), 8024 hours (Pilot In Command, all aircraft), 89 hours (Last 90 days, all aircraft), 38 hours (Last 30 days, all aircraft)		

### Co-pilot Information

<b>Certificate:</b>	Airline transport; Military	<b>Age:</b>	53, Male
<b>Airplane Rating(s):</b>	Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	February 9, 2018
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	March 19, 2018
<b>Flight Time:</b>	4082 hours (Total, all aircraft), 181 hours (Total, this make and model), 3980 hours (Pilot In Command, all aircraft), 11 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Beech	<b>Registration:</b>	N750TA
<b>Model/Series:</b>	400 A	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1999	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	RK-226
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	9
<b>Date/Type of Last Inspection:</b>	April 25, 2014 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	16300 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Turbo fan
<b>Airframe Total Time:</b>	6244.5 Hrs at time of accident	<b>Engine Manufacturer:</b>	P & W Canada
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	JT15D-5
<b>Registered Owner:</b>	Premier Beechcraft LLC	<b>Rated Power:</b>	2965 Lbs thrust
<b>Operator:</b>	Stein's Aircraft Services, LLC	<b>Operating Certificate(s) Held:</b>	None

The operator, Stein's Aircraft Services, LLC, was a 19-year-old company that started as an aircraft management company and had grown into two full-service fixed base operators managing 15 corporate aircraft and 1 joint Part 135 and Part 91 aircraft. The operator employed about 15 full-time pilots and had an additional 6 pilots on contract. All Stein full-time pilots were trained at simulator training vendors. The contract pilots were also simulator trained and their currency verified.

The operator reported that their normal procedures were to schedule the pilots more than 24 hours prior to their assigned flights and pilots to show about an hour or more before the flight. The day prior to a trip, lead pilots were required to preflight and discuss the trips and responsibilities with the other flight crew members. A Flight Risk Assessment Tool (FRAT) was required by the company for all legs of the trip and the risks had to be met to dispatch aircraft. The FRAT was required to be updated within 12 hours of the flight. The operator reported that the FRAT was not updated within the 12-hour time slot required for approval.

After the accident, the operator emphasized the importance of good cockpit resource management (CRM) and restated that pilots "can and have the ability to cancel or change their trip." Additionally, the operator emphasized to the current simulator training vendor to pay close attention to CRM during training sessions.

The airplane flight manual supplement for operation on wet or contaminated runways, in part, stated:

### *INTRODUCTION TO PERFORMANCE*

*The contaminated runway performance assumes that any dry snow, wet snow, slush or standing water is a uniform depth and density, does not exceed 0.5 inch in depth....*

### *Runway Contaminated by Standing Water, Slush or Loose Snow*

*A runway is considered to be contaminated when more than 25% of the runway surface area (whether in*

isolated areas or not) within the required length and width being used, is covered by surface water more than 3 mm (0.125 inch) deep, or by slush or loose snow equivalent to more than 3 mm (0.125 inch) of water.

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Instrument (IMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	RID, 1140 ft msl	<b>Distance from Accident Site:</b>	1 Nautical Miles
<b>Observation Time:</b>	09:55 Local	<b>Direction from Accident Site:</b>	60°
<b>Lowest Cloud Condition:</b>	Scattered / 300 ft AGL	<b>Visibility</b>	0.5 miles
<b>Lowest Ceiling:</b>	Overcast / 1500 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	4 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	80°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.12 inches Hg	<b>Temperature/Dew Point:</b>	0°C / 0°C
<b>Precipitation and Obscuration:</b>	Moderate - None - Fog		
<b>Departure Point:</b>	Waukesha, WI (UES)	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Richmond, IN (RID)	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	09:17 Local	<b>Type of Airspace:</b>	

At 0955, the recorded weather at RID included wind from 080° at 4 kts; visibility 1/2 statute mile; fog; scattered clouds at 300 ft agl, overcast clouds at 1,500 ft agl; temperature 0°C; dew point 0°C; altimeter 30.12 inches of mercury.

At 1015, the recorded weather at RID included wind from 080° at 4 kts; visibility 1 statute mile; mist; scattered clouds at 300 ft agl, overcast clouds at 1,500 ft agl; temperature 0°C; dew point 0°C; altimeter 30.13 inches of mercury.

## Airport Information

<b>Airport:</b>	Richmond Muni RID	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	1139 ft msl	<b>Runway Surface Condition:</b>	Snow
<b>Runway Used:</b>	24	<b>IFR Approach:</b>	Global positioning system
<b>Runway Length/Width:</b>	5502 ft / 150 ft	<b>VFR Approach/Landing:</b>	Full stop

RID was equipped with two runways, designated 6/24 and 15/33. Runway 24, a grooved asphalt runway, was 5,502 ft long and 150 ft wide with a gradient of about 0.1%. A four-light precision approach path indicator was located on the left side of runway 24, which provided a 3-degree glidepath. According to published FAA information, the airport was serviced by an Automated Weather Observing Systems (AWOS) IIP.

Advisory Circular (AC) 150/5220-16E, in part, describes types of certified non-Federal AWOS. They are defined based on their certified sensors. An AWOS IIP measures and reports wind data, temperature, dew point, altimeter, density altitude, visibility, precipitation accumulation, and cloud height and has a precipitation type/intensity sensor.

Between 0853 and 0856, RID airport management issued several NOTAMs indicating that there was 2 inches of wet snow on all runways, taxiways, and aprons. Airport management also issued a NOTAM indicating that the airport was closed from 1025 on February 11, 2019, through 1025 on February 12, 2019.

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 None	<b>Latitude, Longitude:</b>	39.750831,-84.852218(est)

Linear witness marks in the snow consistent with the landing gear started about halfway down runway 24, near the intersection with runway 15/33, continued down the remaining runway, through a localizer antenna array, and ended at the wreckage site. The nose landing gear (NLG) collapsed and deformed the fuselage and structure behind the NLG. The throttle quadrant was abeam this structure. No other damage was found that would have precluded normal operation of the airplane.

## Additional Information

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### Performance Information

An NTSB airplane performance study indicated that the airplane crossed the runway threshold at a speed of 150 knots and touched down 3,100 ft beyond the threshold of the runway at 125 knots. About 4 seconds after touchdown, the thrust reversers were deployed. The airplane traveled beyond the end of the runway and came to rest about 750 ft beyond the runway.

According to the pilot checklist, the airplane's landing reference speed ( $V_{ref}$ ) was between 110 and 114 knots. The airplane flight manual indicated that, for a dry runway with calm wind, the airplane's stopping distance was between about 3,234 ft and about 3,546 ft. For wet or compacted snow, the stopping distance was 5,300 ft. Landing distance calculations do not account for thrust reverser deployment.



## Administrative Information

<b>Investigator In Charge (IIC):</b>	Malinowski, Edward
<b>Additional Participating Persons:</b>	Dale Hoff; Federal Aviation Administration; Plainfield, IN Peter Basile; Textron Aviation; Wichita, KS Jeff Davis; Pratt & Whitney Canada; Bridgeport, WV Earl Chapman; Transportation Safety Board of Canada; Ottawa Terry Bryant; Federal Aviation Administration; Plainfield, IN Marc Hamilton; Transportation Safety Board of Canada; Ottawa
<b>Original Publish Date:</b>	May 6, 2021
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 2</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=99038">https://data.nts.gov/Docket?ProjectID=99038</a>

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