



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Wall Township, New Jersey	Accident Number:	ERA23LA176
Date & Time:	April 1, 2023, 19:37 Local	Registration:	N85AV
Aircraft:	Cessna 750	Aircraft Damage:	Substantial
Defining Event:	Loss of control on ground	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The flight crew of the business jet reported that after touching down on runway centerline the airplane was struck by a gust of wind from the right. They were able to keep the airplane on the runway centerline but were subsequently struck by another more powerful gust, which pushed the airplane off the left side of the runway. The runway excursion resulted in substantial damage to the fuselage and left wing. A posaccident review of weather radar data showed that a severe thunderstorm (for which a tornado warning had been issued) was present to the west of the airport and was rapidly moving east. There was a convective SIGMET valid for the airport at the time of the accident. The pilot-in-command reported checking relevant weather information before the flight, that the airplane was equipped with an operational onboard weather radar system, and that there were no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

Probable Cause and Findings

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

The pilots' loss of directional control while landing in gusting wind conditions which resulted in a runway excursion. Also contributing was the flight crew's decision to land at an airport where there was a rapidly approaching severe thunderstorm.

Findings

Aircraft	Directional control - Not attained/maintained
Environmental issues	Gusts - Effect on operation
Personnel issues	Decision making/judgment - Flight crew
Environmental issues	Thunderstorm - Decision related to condition

Factual Information

History of Flight

Landing-landing roll	Windshear or thunderstorm
Landing	Loss of control on ground (Defining event)
Landing-landing roll	Runway excursion

Pilot Information

Certificate:	Airline transport	Age:	63,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	January 28, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	November 30, 2022
Flight Time:	12865 hours (Total, all aircraft), 264 hours (Total, this make and model), 10000 hours (Pilot In Command, all aircraft), 180 hours (Last 90 days, all aircraft), 60 hours (Last 30 days, all aircraft), 6.9 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Commercial; Flight instructor	Age:	28,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	June 10, 2022
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	July 8, 2022
Flight Time:	1450 hours (Total, all aircraft), 330 hours (Total, this make and model), 850 hours (Pilot In Command, all aircraft), 120 hours (Last 90 days, all aircraft), 70 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N85AV
Model/Series:	750	Aircraft Category:	Airplane
Year of Manufacture:	1999	Amateur Built:	
Airworthiness Certificate:	Transport	Serial Number:	7500085
Landing Gear Type:	Retractable - Tricycle	Seats:	11
Date/Type of Last Inspection:	January 21, 2023 Continuous airworthiness	Certified Max Gross Wt.:	35700 lbs
Time Since Last Inspection:		Engines:	2 Turbo fan
Airframe Total Time:	12272.7 Hrs at time of accident	Engine Manufacturer:	ROLLS ROYCE
ELT:	Installed, not activated	Engine Model/Series:	AE 3007C
Registered Owner:	BANK OF UTAH TRUSTEE	Rated Power:	7042 Lbs thrust
Operator:	USAC Airways 693, LLC	Operating Certificate(s) Held:	Commuter air carrier (135)
Operator Does Business As:	Discovery Jets	Operator Designator Code:	4USA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Night
Observation Facility, Elevation:	BLM,159 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	19:36 Local	Direction from Accident Site:	311°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	110°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	29.31 inches Hg	Temperature/Dew Point:	17°C / 17°C
Precipitation and Obscuration:	Light - None - Rain		
Departure Point:	Nashville, TN (BNA)	Type of Flight Plan Filed:	IFR
Destination:	Wall Township, NJ	Type of Clearance:	IFR
Departure Time:	17:00 Local	Type of Airspace:	Class G

Airport Information

Airport:	MONMOUTH EXECUTIVE AIRPORT BLM	Runway Surface Type:	Asphalt
Airport Elevation:	153 ft msl	Runway Surface Condition:	Dry
Runway Used:	32	IFR Approach:	RNAV
Runway Length/Width:	7345 ft / 85 ft	VFR Approach/Landing:	Full stop

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	40.184921,-74.121869(est)

Preventing Similar Accidents

Thunderstorm Encounters (SA-011)

The Problem

Even when pilots are flying under instrument flight rules (IFR) and in contact with air traffic controllers, accidents can still occur due to in-flight weather because the pilots are either not advised of the severe weather ahead or are given incorrect information. Often, pilots have readily available alternatives that, if utilized, could prevent an accident.

What can you do?

- Severe weather avoidance is primarily *your responsibility*.

- The primary job of ATC is to keep IFR aircraft separated. When their workload permits, controllers are also required to provide additional services such as weather advisories, and, upon pilot request, suggested headings to avoid radar-displayed precipitation.
- The proper use of ATC weather advisory services may be critical to your safety when operating near areas of convective activity.
- Approach control radar systems provide near-real-time weather depiction. En route centers receive weather radar information from National Weather Service NEXRAD sites that refresh the color precipitation data on ATC displays every 4 to 5 minutes. Be aware that en route weather displays may be a few minutes behind the storm and allow extra distance from reported intense precipitation, especially in front of fast-moving convective activity. Also be aware that cockpit NEXRAD data can be 15 to 20 minutes older than indicated on the cockpit display.
- ATC radar systems depict **only** precipitation. Controllers cannot use radar to warn of turbulence, icing, freezing rain, or other hazards to flight. However, the presence of substantial precipitation implies the existence of thunderstorm hazards such as severe turbulence and hail.
- ATC weather advisories should include the location, extent, and intensity of radar-observed precipitation. The descriptive words for intensity were recently changed to ensure consistency across all ATC facilities. The old level 1 is now "light"; level 2 is "moderate"; levels 3 and 4 are described as "heavy"; and levels 5 and 6 are described as "extreme." If precipitation is described to you without any reference to intensity, ask for the information so you can make a good decision about how to proceed.
- Not all ATC radar systems can provide intensity information. In such situations, you should be told "intensity unknown."
- Some accidents appear to have involved controller uncertainty about whether the pilot was visually avoiding severe weather areas or needed radar weather assistance. The controller thought the pilot was able to see what was ahead, and the pilot thought the controller was watching out for him. It is especially important that you advise controllers if your flight conditions change from visual to instrument, and that when operating in instrument conditions you regularly request updated information on radar-depicted weather ahead of your aircraft.
- Be especially diligent about asking for updates after being transferred from one ATC facility to another. The new controller may have better equipment or be using a different radar site and have an entirely different picture of what lies ahead.
- Ambiguous use of the term "when able" has also led to confusion. Some controllers use "Cleared direct xxx when able" to mean "when weather permits you to turn safely on course," while pilots may understand such an instruction to mean "Go direct to xxx as soon as you can navigate there." In some cases, this ambiguity has apparently led pilots receiving ATC weather avoidance assistance to conclude that it was safe to turn direct to the specified fix, resulting in subsequent entry into thunderstorms. If you have any uncertainty about whether a course change will keep you clear of convective weather, **ASK!**
- Give pilot reports. Controllers use them to confirm their radar weather depiction, and to obtain details such as cloud tops or the existence of icing that may not be available

through any other source. Pilot reports also help controllers advise other aircraft about what to expect and what to avoid.

- The safest plan when avoiding severe weather activity is to entirely avoid the affected area or land and wait for it to pass. However, if you find yourself in need of ATC assistance, ask specific questions. Where is it in relation to my route? What does it cover? How far away is it? What intensities do you see? What looks like the best way around it?
- Make decisions about weather deviations as far in advance as possible. Controllers will have more time to respond to your needs, perform any necessary coordination, and provide you with the information you require to conduct a safe flight.
- Pay attention to weather alerts broadcast by ATC, especially SIGMETS and Center Weather Advisories, and obtain further details from HIWAS or Flight Watch if the advisory is anywhere along or near your route. Flight Watch can also supply “big picture” weather information beyond what ATC may have time to provide to you.
- Become familiar with the various on-board weather avoidance technologies available, including data-linked onboard NEXRAD weather services, and consider whether the additional information will help you to avoid encounters with severe weather.

See <https://www.nts.gov/Advocacy/safety-alerts/Documents/SA-011.pdf> for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

Administrative Information

Investigator In Charge (IIC):	Young, Joshua
Additional Participating Persons:	Vincent Bellini; FAA/FSDO; Saddle Brook, NJ
Original Publish Date:	June 29, 2023
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=106991

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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