



Aviation Investigation Final Report

Location:	East Palestine, Ohio	Accident Number:	DCA23LA383
Date & Time:	July 24, 2023, 15:30 Local	Registration:	N279WN
Aircraft:	Boeing 737	Aircraft Damage:	None
Defining Event:	Turbulence encounter	Injuries:	1 Serious, 149 None
Flight Conducted Under:	Part 121: Air carrier - Scheduled		

Analysis

Southwest Airlines flight 1118 encountered moderate turbulence while descending through 12,000 ft for landing at Pittsburgh International Airport (PIT) Pittsburgh, Pennsylvania, and a flight attendant fractured her wrist.

The flight crew reported that while descending on the JESEY4 RNAV arrival into PIT they observed low cumulus clouds with tops at about 14,000 ft. The captain notified the flight attendants to take their seats due to the possibility of turbulence. As they descended through the cloud layer at about 12,000 ft the flight encountered an area of moderate turbulence for about 20-30 seconds.

After receiving the notification from the captain to take their seats. The "B" and "C" position flight attendants (FAs) moved to their respective jumpseats and were attempting to fasten their safety harnesses when the turbulence event occurred. The "B" position FA was thrown into the air and impacted the jump seat. The "C" position FA was thrown into the air and impacted the aft lavatory fracturing her wrist. She described the turbulence as "like nothing I have ever felt almost like something hit the back of the airplane." The flight crew stated that they were not notified of the injury until after the plane had landed and they were walking to their accommodations.

At the time of the turbulence encounter there were no active significant meteorological information (SIGMETs), convective SIGMETs, airman's meteorological information (AIRMETs), center weather advisories (CWAs), or pilot reports (PIREPs) of any significant turbulence other than occasional light turbulence/chop over the area.

Eddy dissipation rate (EDR) is a universal measure of turbulence rate. Recorded data from the airplane revealed that about 1929 Coordinated Universal Time (UTC), or 1529 local, at an altitude of about 9,970 ft the EDR indicated 0.40 which equates to moderate turbulence. According to the flight crew, neither the clouds nor the turbulence were depicted on their Weather Services International (WSI) Pilotbrief weather application or displayed on their airplane weather radar.

Probable Cause and Findings

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

An inadvertent encounter with convectively induced turbulence (CIT) during descent.

Findings	
Environmental issues	Convective turbulence - Effect on personnel
Environmental issues	Convective turbulence - Awareness of condition
Personnel issues	Knowledge of meteorologic cond - Flight crew

Factual Information

History of Flight

Approach	Turbulence encounter (Defining event)
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Pilot Information

Certificate:	Airline transport; Commercial	Age:	55,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	5-point
Instrument Rating(s):	Airplane	Second Pilot Present:	
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	Toxicology Performed:	
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	July 7, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	October 23, 2022
Flight Time:	20328 hours (Total, all aircraft), 5000 hours (Total, this make and model), 10600 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 55 hours (Last 30 days, all aircraft), 12 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Airline transport; Flight instructor	Age:	53,Male
Airplane Rating(s):	Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	5-point
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	
Instructor Rating(s):	Airplane multi-engine; Instrument airplane; Instrument helicopter	Toxicology Performed:	
Medical Certification:	Class 1 Waiver time limited special	Last FAA Medical Exam:	June 26, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	June 2, 2023
Flight Time:	12600 hours (Total, all aircraft), 2755 hours (Total, this make and model), 7221 hours (Pilot In Command, all aircraft), 188 hours (Last 90 days, all aircraft), 91 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Boeing	Registration:	N279WN
Model/Series:	737 7H4	Aircraft Category:	Airplane
Year of Manufacture:	2007	Amateur Built:	
Airworthiness Certificate:	Transport	Serial Number:	32532
Landing Gear Type:	Retractable - Tricycle	Seats:	140
Date/Type of Last Inspection:	July 23, 2023 Continuous airworthiness	Certified Max Gross Wt.:	155000 lbs
Time Since Last Inspection:		Engines:	2
Airframe Total Time:	53731 Hrs as of last inspection	Engine Manufacturer:	
ELT:	C126 installed, not activated	Engine Model/Series:	
Registered Owner:	SOUTHWEST AIRLINES CO	Rated Power:	
Operator:	SOUTHWEST AIRLINES CO	Operating Certificate(s) Held:	Flag carrier (121)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	Condition of Light:	Day
Observation Facility, Elevation:	KPIT, 1119 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	14:51 Local	Direction from Accident Site:	108°
Lowest Cloud Condition:	Scattered / 4600 ft AGL	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	None / Convective
Wind Direction:	270°	Turbulence Severity Forecast/Actual:	N/A / Moderate
Altimeter Setting:	30.06 inches Hg	Temperature/Dew Point:	28°C / 15°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Chicago , IL (MDW)	Type of Flight Plan Filed:	IFR
Destination:	East Palestine, OH	Type of Clearance:	IFR
Departure Time:	13:43 Local	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Serious, 4 None	Aircraft Damage:	None
Passenger Injuries:	145 None	Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 Serious, 149 None	Latitude, Longitude:	40.88,-80.658(est)

Administrative Information

Investigator In Charge (IIC):	Banning, David
Additional Participating Persons:	AVP-100; Federal Aviation Administration ; Washington, DC
Original Publish Date:	October 16, 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=192743

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.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).