



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	New Orleans, Louisiana	Accident Number:	DCA23LA175
Date & Time:	February 16, 2023, 07:30 Local	Registration:	N505NK
Aircraft:	Airbus A319-132	Aircraft Damage:	None
Defining Event:	Turbulence encounter	Injuries:	1 Serious, 2 Minor, 154 None
Flight Conducted Under:	Part 121: Air carrier - Scheduled		

Analysis

Spirit Airlines flight 641 encountered convective turbulence while descending into Louis Armstrong New Orleans International Airport (MSY), New Orleans, Louisiana. As a result of the turbulence, all three flight attendants were injured with two receiving minor injuries and one receiving a serious injury. The aircraft continued to its destination without further incident.

According to the captain, the flight crew completed the approach checklist and illuminated the seat belt sign when the airplane was at about flight level (FL)180. As the airplane passed through 12,000 feet, the first officer (FO) made an announcement to the flight attendants to prepare the cabin for landing.

According to the lead flight attendant, she made the landing announcement to passengers while the other two flight attendants started final checks from the aft cabin. The lead flight attendant then started the final check from the front of the aircraft. When the lead flight attendant was between rows 6 and 9, the airplane descended through a cloud layer at about 7000 feet and experienced what was described as moderate turbulence by the flight crew. This turbulence led to all three flight attendants falling to the floor. All three flight attendants agreed they needed medical attention and notified the flight crew. The FO called operations and requested for paramedics to meet the airplane. The flight continued to its destination without further incident. Upon arrival at MSY, paramedics met the airplane at the gate, and all flight attendants received medical treatment.

The lead flight attendant was transported to the hospital where she was diagnosed with a fractured ankle. Another flight attendant suffered minor injuries to their back and the third suffered minor injuries to their head.

Both pilots stated that the cloud layer appeared stable with no vertical development, and there were no indications on the radar that suggested the risk of turbulence. A post-accident review of the weather conditions showed no pilot reports (PIREPs) for turbulence located within a 100 nm radius from the accident location within 2 hours of the accident time.

There were no airman’s meteorological information (AIRMETs), significant meteorological information (SIGMETs), or Center Weather Advisories for turbulence or thunderstorm activity for the accident location. Based on weather satellite information and upper air sounding data, the flight encountered convective activity while traversing building cumulus clouds during the descent.

Probable Cause and Findings

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

The flight’s encounter with convective turbulence.

Findings	
Environmental issues	Convective turbulence - Effect on personnel

Factual Information

History of Flight

Enroute-descent	Turbulence encounter (Defining event)
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Pilot Information

Certificate:	Airline transport; Flight instructor	Age:	38,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:	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	October 10, 2022
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	December 15, 2022
Flight Time:	6100 hours (Total, all aircraft), 2800 hours (Total, this make and model), 2645 hours (Pilot In Command, all aircraft), 200 hours (Last 90 days, all aircraft), 57 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	Age:	38,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):		Restraint Used:	5-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	July 27, 2022
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	June 21, 2022
Flight Time:	4256 hours (Total, all aircraft), 356 hours (Total, this make and model), 1315 hours (Pilot In Command, all aircraft), 145 hours (Last 90 days, all aircraft), 46 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Cabin crew Information

Certificate:	Age:	Female
Airplane Rating(s):	Seat Occupied:	Unknown
Other Aircraft Rating(s):	Restraint Used:	None
Instrument Rating(s):	Second Pilot Present:	Yes
Instructor Rating(s):	Toxicology Performed:	
Medical Certification:	Last FAA Medical Exam:	
Occupational Pilot:	Last Flight Review or Equivalent:	
Flight Time:		

Cabin crew Information

Certificate:	Age:	Female
Airplane Rating(s):	Seat Occupied:	Left
Other Aircraft Rating(s):	Restraint Used:	None
Instrument Rating(s):	Second Pilot Present:	Yes
Instructor Rating(s):	Toxicology Performed:	
Medical Certification:	Last FAA Medical Exam:	
Occupational Pilot:	Last Flight Review or Equivalent:	
Flight Time:		

Cabin crew Information

Certificate:	Age:	Female
Airplane Rating(s):	Seat Occupied:	Right
Other Aircraft Rating(s):	Restraint Used:	None
Instrument Rating(s):	Second Pilot Present:	Yes
Instructor Rating(s):	Toxicology Performed:	
Medical Certification:	Last FAA Medical Exam:	
Occupational Pilot:	Last Flight Review or Equivalent:	
Flight Time:		

Aircraft and Owner/Operator Information

Aircraft Make:	Airbus	Registration:	N505NK
Model/Series:	A319-132	Aircraft Category:	Airplane
Year of Manufacture:	2005	Amateur Built:	
Airworthiness Certificate:	Transport	Serial Number:	2485
Landing Gear Type:	Retractable - Tricycle	Seats:	150
Date/Type of Last Inspection:	Continuous airworthiness	Certified Max Gross Wt.:	166447 lbs
Time Since Last Inspection:		Engines:	2 Turbo fan
Airframe Total Time:		Engine Manufacturer:	IAE
ELT:	C126 installed, not activated	Engine Model/Series:	V2524-A5
Registered Owner:	SPIRIT AIRLINES INC	Rated Power:	24798 Lbs thrust
Operator:	SPIRIT AIRLINES INC	Operating Certificate(s) Held:	Flag carrier (121)
Operator Does Business As:		Operator Designator Code:	GTIA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KMSY	Distance from Accident Site:	30 Nautical Miles
Observation Time:	07:40 Local	Direction from Accident Site:	130°
Lowest Cloud Condition:	Scattered / 800 ft AGL	Visibility	7 miles
Lowest Ceiling:	Broken / 2900 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	15 knots / 22 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	150°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.95 inches Hg	Temperature/Dew Point:	22°C / 21°C
Precipitation and Obscuration:			
Departure Point:	Atlanta, GA (ATL)	Type of Flight Plan Filed:	IFR
Destination:	New Orleans, LA (MSY)	Type of Clearance:	IFR
Departure Time:	12:22 UTC	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Serious, 2 Minor, 2 None	Aircraft Damage:	None
Passenger Injuries:	152 None	Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 Serious, 2 Minor, 154 None	Latitude, Longitude:	29.993333,-90.258056

Administrative Information

Investigator In Charge (IIC): Bower, Daniel

Additional Participating Persons:

Original Publish Date: July 19, 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=106744>

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](#).