



National Transportation Safety Board Aviation Accident Final Report

Location:	Janesville, WI	Accident Number:	CHI04LA084
Date & Time:	03/01/2004, 1422 CST	Registration:	N516UA
Aircraft:	Boeing 757-200	Aircraft Damage:	None
Defining Event:		Injuries:	1 Serious, 175 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

A flight attendant suffered a broken ankle and tibia when the airplane encountered turbulence during descent. The captain reported the seat belt sign was turned on as they descended through 18,000 feet. He reported they encountered about 15 seconds of moderate turbulence as they passed through 16,000 feet. He reported there were no weather returns in the area and they were back in smooth air after the encounter. The first officer reported that he informed the flight attendants to take their seats as soon as they began to encounter the turbulence. He reported he was getting ready to call the flight attendants after the turbulence to make sure they were alright, when the cockpit received a call from the back stating that one of the flight attendants injured her ankle. The first officer reported that they requested paramedics meet the flight upon landing. The injured flight attendant reported she was in the aft galley when they encountered the turbulence. She stated she tried to get in the jumpseat, but was unable to because of the turbulence. The injured flight attendant stated she heard another flight attendant tell a passenger who was in the aft galley to sit on the floor, so she decided to do the same. She stated that as she was sitting down, the "plane dropped" and she fell. Once the turbulence subsided, the other flight attendant and a passenger helped her off the floor and into a seat. None of the flight attendants recalled having any advance warning of the turbulence. Rapidly building convective activity was evident along the upper Mississippi Valley at the time of the accident. Convective tops averaging FL250 in the area were moving north-northeast at 60 knots. Severe Weather Advisory 15S, valid from 1731 universal coordinated time (UTC) to 2301 UTC, covered the route of flight from the Mississippi River to ORD. The severe thunderstorm watch included a forecast for hail, surface wind gusts to 60 knots, maximum cloud tops to FL450, and a storm motion vector to 240 degrees at 35 knots. Convective Sigmet 25C was valid until 2255UTC. The Sigmet called for an area of embedded thunderstorms moving from 190 degrees at 20 knots. The thunderstorms had tops to FL300. Data from the digital flight data recorder shows the airplane experienced vertical acceleration fluctuations from a minimum of 0.437 g's, to a maximum of 1.994 g's, and back to 0.576 g's in less than 3 seconds.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The unexpected encounter with convective turbulence.

Findings

Occurrence #1: ALTITUDE DEVIATION, UNCONTROLLED
Phase of Operation: DESCENT - NORMAL

Findings

1. (C) WEATHER CONDITION - TURBULENCE, CONVECTION INDUCED
2. (C) UNSAFE/HAZARDOUS CONDITION - NOT IDENTIFIED

Factual Information

On March 1, 2004, at 1422 central standard time, a Boeing 757-200, N516UA, operated by United Airlines as flight 1212 encountered moderate turbulence while in a descent 20 miles west-southwest of Janesville, Wisconsin. One flight attendant suffered a broken ankle and tibia during the encounter. The captain, first officer, 4 flight attendants, and 169 passengers were not injured. The airplane was not damaged. The 14 CFR Part 121 scheduled, domestic, passenger flight was operating in instrument meteorological conditions (IMC) at the time. The flight was on an instrument flight rules (IFR) flight plan. The flight originated from the Portland International Airport (PDX), Portland, Oregon, at 0915 pacific standard time. The flight continued to its planned destination of Chicago International Airport (ORD), Chicago, Illinois, where it landed at 1450.

The captain reported the autopilot was engaged from the time they leveled off after departure until reading the final approach fix at ORD. He reported that when they were about 50 nautical miles (nm) west of Mason City, Iowa, they were cleared direct to Janesville (JVL), Wisconsin. He stated they noticed lowing visibilities at lower altitudes and cumulus clouds building in the distance so they turned on the radar and kept it on until landing. The captain reported they were in instrument conditions between flight level (FL) 260 down to 10,000 feet. The captain reported that when they were about 70 nm west of JVL, they were cleared direct to JVL which was a course of about 090 degrees. He reported that when they were about 60 nm west of JVL they turned to a heading of 120 degrees to avoid a green cell that had a 1nm yellow diameter. The captain stated they passed south of the cell in smooth air. He reported that when 20 nm west of JVL they were cleared direct to the KRENA intersection. The captain reported the seat belt sign was turned on as they descended through FL180. He reported they encountered about 15 seconds of moderate turbulence as they passed through 16,000 feet. He reported there were no weather returns in the area and they were back in smooth air after the encounter.

The first officer recounted essentially the same events as the captain. However, he reported that he informed the flight attendants to take their seats as soon as they began to encounter the turbulence. He reported he was getting ready to call the flight attendants after the turbulence to make sure they were alright, when the cockpit received a call from the back stating that one of the flight attendants injured her ankle. The first officer reported that they requested paramedics meet the flight upon landing.

The injured flight attendant reported she was in the aft galley when they encountered the turbulence. She stated she tried to get in the jumpseat, but was unable to because of the turbulence. The injured flight attendant stated she heard another flight attendant tell a passenger who was in the aft galley to sit on the floor, so she decided to do the same. She stated that as she was sitting down the "plane dropped" and she fell. Once the turbulence subsided, the other flight attendant and a passenger helped her off the floor and into a seat.

A flight attendant in the front of the airplane reported she was going to her jumpseat to make a public address announcement when they encountered the turbulence. She stated she flew into the air and as she came back down her arm caught on the jumpseat pulling it open. Another flight attendant in the front of the airplane was restrained by a passenger during the turbulence encounter.

None of the flight attendants recalled having any advance warning of the turbulence.

Rapidly building convective activity was evident along the upper Mississippi Valley at the time of the accident. Convective tops averaging FL250 in the area were moving north-northeast at 60 knots.

Severe Weather Advisory 15S valid from 1731 universal coordinated time (UTC) to 2301 UTC covered the route of flight from the Mississippi River to ORD. The severe thunderstorm watch included a forecast for hail, surface wind gusts to 60 knots, maximum cloud tops to FL450, and a storm motion vector to 240 degrees at 35 knots.

Convective SIGMET 25C was valid until 2255UTC. The SIGMET called for an area of embedded thunderstorms moving from 190 degrees at 20 knots. The thunderstorms had tops to FL300.

Data from the digital flight data recorder (DFDR) shows the airplane experienced vertical acceleration fluctuations from a minimum of 0.437 g's, to a maximum of 1.994 g's, and back to 0.576 g's in less than 3 seconds.

Pilot Information

Certificate:	Airline Transport; Commercial; Flight Engineer	Age:	51, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last Medical Exam:	12/31/2003
Occupational Pilot:		Last Flight Review or Equivalent:	11/01/2002
Flight Time:	16750 hours (Total, all aircraft), 4055 hours (Total, this make and model), 6745 hours (Pilot In Command, all aircraft), 166 hours (Last 90 days, all aircraft), 61 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial; Flight Engineer	Age:	37, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last Medical Exam:	11/06/2003
Occupational Pilot:		Last Flight Review or Equivalent:	09/01/2003
Flight Time:	6026 hours (Total, all aircraft), 2001 hours (Total, this make and model), 242 hours (Last 90 days, all aircraft), 63 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Boeing	Registration:	N516UA
Model/Series:	757-200	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	24860
Landing Gear Type:	Retractable - Tricycle	Seats:	192
Date/Type of Last Inspection:	11/15/2002, Continuous Airworthiness	Certified Max Gross Wt.:	240000 lbs
Time Since Last Inspection:	3699 Hours	Engines:	2 Turbo Fan
Airframe Total Time:	45092 Hours	Engine Manufacturer:	Pratt & Whitney
ELT:	Not installed	Engine Model/Series:	PW 2000
Registered Owner:	United Airlines, Inc.	Rated Power:	37000 lbs
Operator:	United Airlines, Inc.	Air Carrier Operating Certificate:	Flag carrier (121)
Operator Does Business As:	United Airlines	Operator Designator Code:	UALA

Meteorological Information and Flight Plan

Observation Facility, Elevation:	JVL, 808 ft msl	Observation Time:	1445 CST
Distance from Accident Site:	20 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	90°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Scattered / 3200 ft agl	Temperature/Dew Point:	13° C / 7° C
Lowest Ceiling:	Broken / 6500 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	6 knots, 200°	Visibility (RVR):	
Altimeter Setting:	29.5 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:			
Departure Point:	Portland, OR (PDX)	Type of Flight Plan Filed:	IFR
Destination:	Chicago, IL (ORD)	Type of Clearance:	IFR
Departure Time:	0915 PST	Type of Airspace:	Class A

Wreckage and Impact Information

Crew Injuries:	1 Serious, 6 None	Aircraft Damage:	None
Passenger Injuries:	169 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 175 None		

Administrative Information

Investigator In Charge (IIC):	Pamela S Sullivan	Adopted Date:	06/08/2005
Additional Participating Persons:	Bob Wood; FAA; Schiller Park, IL		
Publish Date:			
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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