
Turbulence Injury, Boeing 757-2G7, April 2, 2000

Micro-summary: This Boeing 757-2G7 encountered turbulence in cruise, injuring several people.


Event Date: 2000-04-02 at 2206 CDT

Investigative Body: National Transportation Safety Board (NTSB), USA

Investigative Body's Web Site: <http://www.nts.gov/>

Cautions:

1. Accident reports can be and sometimes are revised. Be sure to consult the investigative agency for the latest version before basing anything significant on content (e.g., thesis, research, etc).
 2. Readers are advised that each report is a glimpse of events at specific points in time. While broad themes permeate the causal events leading up to crashes, and we can learn from those, the specific regulatory and technological environments can and do change. ***Your company's flight operations manual is the final authority as to the safe operation of your aircraft!***
 3. Reports may or may not represent reality. Many many non-scientific factors go into an investigation, including the magnitude of the event, the experience of the investigator, the political climate, relationship with the regulatory authority, technological and recovery capabilities, etc. It is recommended that the reader review all reports analytically. Even a "bad" report can be a very useful launching point for learning.
 4. Contact us before reproducing or redistributing a report from this anthology. Individual countries have very differing views on copyright! We can advise you on the steps to follow.
-

		NTSB ID: LAX00LA146		Aircraft Registration Number: N910AW	
		Occurrence Date: 04/02/2000		Most Critical Injury: Serious	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place DALLAS		State TX	Zip Code 79601	Local Time 2206	Time Zone CDT
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Boeing		Model/Series 757-2G7		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
<p>HISTORY OF FLIGHT</p> <p>On April 2, 2000, about 2206 hours central daylight time (0306 UTC), a Boeing 757-2G7, N910AW, operated by America West Airlines, Inc., as Cactus flight number 563, encountered moderate turbulence while cruising at flight level 310 about 38 nautical miles (nm) south of Dallas, Texas. The airplane was undamaged; however, three flight attendants, who were located in the aft galley, sustained injuries (one serious and two minor), and one flight attendant was not injured. Neither of the 2 pilots nor the 193 passengers (including 3 infants) was injured. The scheduled, domestic, passenger flight was performed under 14 CFR Part 121. Instrument meteorological conditions prevailed, and an instrument flight plan was filed. The flight originated at 2037 eastern daylight time from Orlando, Florida, and it landed without further mishap at 2231 Pacific daylight time in Las Vegas, Nevada.</p> <p>In a written statement received from the captain, he indicated that 5 or 6 minutes prior to experiencing "two strong jolts of turbulence," he had anticipated encountering the turbulence because of the presence of a line of thunderstorms. He indicated that the fasten seatbelt signs were turned on. Additionally, the captain reported that he had contacted the First Flight Attendant and advised her "of the line of storms with the possibility of further turbulence." The captain reported that he "directed that cabin service be suspended, and the [service] carts stowed."</p> <p>In summary, the Director of Operations Safety at America West Airlines reported that flight attendants estimated 3 to 7 minutes after they received the captain's message the turbulence was encountered. The First Flight Attendant (front cabin) was knocked off her feet. The three flight attendants in the aft galley were thrown upward but did not strike the ceiling before coming back down and falling to the floor.</p> <p>Regarding the sequence of events leading to the flight attendants' notifications of turbulence, in a written statement received from the First Flight Attendant (First FA), she indicated that the captain had "called us again to secure our galleys mentioning that we were going to go through some more turbulence." The First FA further reported that she instructed them [the other FAs] to stop service and take their seats immediately."</p> <p>The Second FA made a written statement in which he recalled that the First FA had advised the captain said we needed to take our seats in about 5 minutes because we were going to experience some more bumps. The Second FA indicated that he, and another FA, passed out the two drinks in their hands and headed for the back (of the airplane). They then immediately secured the carts and started to secure the galley. It seemed as if right after the last compartment was secured it (the turbulence) hit.</p> <p>The Third FA reported that the First FA came to Cabin C while they were doing a beverage service.</p>					
FACTUAL REPORT - AVIATION					
					Page 1

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: LAX00LA146

Occurrence Date: 04/02/2000

Occurrence Type: Accident

Narrative (Continued)

The First FA told her that the captain said they needed to stow the carts and take their jump seats, as it was going to get bumpy. The Third FA additionally reported "we took the carts back in the galley and stowed them along with the cups, and other miscellaneous service items. Right then, we hit severe turbulence."

The Fourth FA reported that she heard the First FA's announcement that the captain again "advised of bad weather," and he requested that the FA's stow all service carts and sit down. The Fourth FA's immediate compliance with the instructions was delayed due to her interaction with passengers.

METEOROLOGICAL INFORMATION

A convective Sigmet (significant meteorological information) was issued at 0155 UTC and was valid until 0355 UTC. Severe thunderstorms with tops to 45,000 feet, 1-inch diameter hail, and 50-knot wind gusts were forecast in Texas. Moderate turbulence was also forecast.

Regarding the en route weather conditions, the captain indicated that over eastern Texas he observed a line of cells on the radar. It was a dark night, and the airplane was flying in-and-out of clouds. There was no visible lightning in the immediate area, and no precipitation was observed.

The America West Director, Operations Safety, additionally reported that according to the captain, his weather radar indicated the closest large cell was about 20 miles away when they encountered the turbulence that resulted in the flight attendant injuries. Also, the captain reported that he had not received "ride" reports that indicated the possibility of moderate or greater turbulence in the area.

A review of air traffic control communications between the flight crew and the Dallas High Altitude radar controller revealed that at 0308:15 UTC a crewmember stated that he "had to turn to miss this cell we're gettin uh we had uh moderate turbulence there." At 0309:30 UTC, a crew member stated "we're gettin pretty uh pretty uh we're gettin moderate uh possibly a little stronger than that."

FLIGHT DATA RECORDER AND RADAR INFORMATION

Extracted information from the airplane's flight data recorder (FDR) revealed peak vertical accelerations from -0.05G to +2.37G occurred during an approximate 1/2-second time interval from 0306:23 UTC to 0306:24 UTC. (See the FDR printout for additional details.)

Federal Aviation Administration recorded radar data indicates that between 0306:27 UTC and 0306:38 UTC, the airplane's transponder indicated a climb from 31,000 feet to 31,100 feet. Between 0306:38 UTC and 0306:58 UTC, the airplane's transponder showed a 300-foot descent. (See the National Track Analysis Plot for additional details.)

ADDITIONAL INFORMATION

Prior to departure, the captain conducted a crew briefing, which included a warning regarding en route turbulence during the flight. Light intensity turbulence was encountered during the flight prior to the accident event.

In the America West Airlines "InFlight Operations Manual" the following procedures are written for crewmembers regarding usage of standard terminology during briefings: "The Captain is to include any information on anticipated or forecast turbulence in the briefing with the 1st Flight Attendant, using the standard terminology of Light Turbulence, Moderate Turbulence, or Severe Turbulence."

Regarding in flight procedures, the Manual states the following: "While in flight, the flight deck

National Transportation Safety Board

FACTUAL REPORT

AVIATION




NTSB ID: LAX00LA146


Occurrence Date: 04/02/2000

Occurrence Type: Accident

Narrative (Continued)

will communicate with the 1st Flight Attendant if turbulence is expected or encountered. Standard turbulence terminology will be used. The 1st FA will immediately communicate this information to the other flight attendants and prepare the cabin according to the Turbulence Level Chart."

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: LAX00LA146			
		Occurrence Date: 04/02/2000			
		Occurrence Type: Accident			
Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Type Instrument Approach:					
VFR Approach/Landing:					
Aircraft Information					
Aircraft Manufacturer Boeing		Model/Series 757-2G7		Serial Number 24523	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 190	Certified Max Gross Wt.	240000 LBS	Number of Engines: 2	
Engine Type: Turbo Fan	Engine Manufacturer: Rolls-Royce	Model/Series: RB-211-535E4	Rated Power: 43000 LBS		
- Aircraft Inspection Information					
Type of Last Inspection AAIP	Date of Last Inspection 03/2000	Time Since Last Inspection Hours	Airframe Total Time 42917 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner AMERICA WEST AIRLINES, INC.		Street Address WILMINGTON TRUST, TRUSTEE			
		City WILMINGTON	State DE	Zip Code 19890	
Operator of Aircraft AMERICA WEST AIRLINES, INC.		Street Address 4000 EAST SKY HARBOR BLVD.			
		City PHOENIX	State AZ	Zip Code 85034	
Operator Does Business As:			Operator Designator Code: AWXA		
- Type of U.S. Certificate(s) Held:					
Air Carrier Operating Certificate(s): Flag Carrier/Domestic					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 121: Air Carrier					
Type of Flight Operation Conducted: Scheduled; Domestic; Passenger Only					
FACTUAL REPORT - AVIATION					

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: LAX00LA146
	Occurrence Date: 04/02/2000
	Occurrence Type: Accident

First Pilot Information

Name On File	City On File	State On File	Date of Birth	Age 56
-----------------	-----------------	------------------	---------------	-----------

Sex: M	Seat Occupied: Left	Principal Profession: Civilian Pilot	Certificate Number: On File
--------	---------------------	--------------------------------------	-----------------------------

Certificate(s): Airline Transport; Flight Engineer

Airplane Rating(s): Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA: Helicopter

Instrument Rating(s): Airplane

Instructor Rating(s): None

Type Rating/Endorsement for Accident/Incident Aircraft? Yes	Current Biennial Flight Review?
-------------------------------------------------------------	---------------------------------

Medical Cert.: Class 1	Medical Cert. Status: Valid Medical--w/ waivers/lim.	Date of Last Medical Exam: 12/1999
------------------------	------------------------------------------------------	------------------------------------

- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	26280	5183								
Pilot In Command(PIC)										
Instructor										
Last 90 Days	171									
Last 30 Days	61									
Last 24 Hours	7									

Seatbelt Used? Yes	Shoulder Harness Used? No	Toxicology Performed?	Second Pilot? Yes
--------------------	---------------------------	-----------------------	-------------------

Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

Departure Point ORLANDO	State FL	Airport Identifier MCO	Departure Time 2037	Time Zone EDT
----------------------------	-------------	---------------------------	------------------------	------------------

Destination LAS VEGAS	State NV	Airport Identifier LAS	
--------------------------	-------------	---------------------------	--


Type of Clearance: IFR

Type of Airspace: Class A

Weather Information

Source of Briefing: Company

Method of Briefing:

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: LAX00LA146
	Occurrence Date: 04/02/2000
	Occurrence Type: Accident

Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
DFW	2053	CDT	559 Ft. MSL	38 NM	350 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			3600 Ft. AGL	Condition of Light: Night/Dark	
Lowest Ceiling: Broken		10000 Ft. AGL		Visibility: 9 SM	Altimeter: 29.00 "Hg
Temperature: 57 °C	Dew Point: 52 °C	Wind Direction: 120		Density Altitude: Ft.	
Wind Speed: 4	Gusts:	Weather Conditions at Accident Site: Instrument Conditions			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	Intensity of Precipitation: Unknown			
Restrictions to Visibility: None					
Type of Precipitation: None					

Accident Information		
Aircraft Damage: None	Aircraft Fire: None	Aircraft Explosion: None

Classification: U.S. Registered/U.S. Soil					
- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot				1	1
Second Pilot				1	1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants		1	2	1	4
Other Crew					
Passengers				193	193
- TOTAL ABOARD -		1	2	196	199
Other Ground	0	0	0		0
- GRAND TOTAL -	0	1	2	196	199

National Transportation Safety Board

FACTUAL REPORT
AVIATION



NTSB ID: LAX00LA146

Occurrence Date: 04/02/2000

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

WAYNE POLLACK

Additional Persons Participating in This Accident/Incident Investigation:

HOWARD VAUGHN
AWP-6 OPERATIONS CENTER
DALLAS, TX 75261

JACK DRAKE
AMERICA WEST AIRLINES
PHOENIX, AZ 85034

DORENE FREDETTE
ASSN. OF FLIGHT ATTENDANTS
TEMPE, AZ 85281