
Turbulence injury, Boeing 737-500, August 9, 2001

Micro-summary: This Boeing 737-500 encountered turbulence during cruise, injuring several people.


Event Date: 2001-08-09 at 1308 PDT

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

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

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 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: LAX01LA275		Aircraft Registration Number: N512SW	
		Occurrence Date: 08/09/2001		Most Critical Injury: Serious	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Klamath Falls		State OR	Zip Code 97601	Local Time 1308	Time Zone PDT
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Boeing		Model/Series 737-500		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 August 9, 2001, about 1308 Pacific daylight time, a Boeing 737-500, N512SW, operated by Southwest Airlines as flight number 1706, encountered turbulence during cruise flight at flight level 330 about 77 nautical miles north of Klamath Falls, Oregon. The scheduled, domestic, passenger flight was performed under 14 CFR Part 121, and an instrument flight rules flight plan was filed. The airplane was not damaged. There were 8 crewmembers and 122 passengers on board. During the encounter with turbulence, none of the flight crew was injured. One standing flight attendant fell down and was seriously injured. A second flight attendant also fell down but was not injured. The third flight attendant did not report having fallen or being injured. Two passengers fell and each reported having a minor injury. No other injuries to passengers were reported. The flight originated from Portland, Oregon, about 1235. It landed without further mishap in Sacramento, California, about 1355.</p> <p>According to the operator, the captain recalled that a cell had appeared in their flight path. Initially, the airplane appeared to be above it. However, as the airplane neared the cell it built up and the airplane went through its top. Turbulence lasted about 2 or 3 seconds, at which time the airplane was back in the clear.</p> <p>In a statement written by the captain, he classified the intensity of the turbulence as "moderate," and it lasted about 5 seconds. The captain stated that, at the time, the seat belt sign was on.</p> <p>The flight attendant who was seriously injured had completed drink service and was walking to the aft galley at the time. She was passing row 15 when the airplane made, according to her, "a little dip." The flight attendant landed on her back in the aisle. The two passengers who had fallen were located in the aft galley.</p> <p>One of the uninjured flight attendants reported that prior to the turbulence encounter, several announcements had been made to the passengers to remain in their seats with their seat belts fastened until the captain turned the seatbelt sign off.</p> <p>METEOROLOGICAL INFORMATION</p> <p>The Federal Aviation Administration (FAA) reported that about the time of the mishap, there were no pilot weather reports (PIREPS), significant meteorological information (SIGMET's), or center weather advisories (CWA's) concerning turbulence for the area.</p> <p>At 1253, Klamath Falls reported few clouds at 5,000 feet, and scattered clouds at 10,000 and 25,000 feet. No precipitation was reported, and the wind was calm. Cumulonimbus clouds were present in the area.</p>					
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National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: LAX01LA275

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Occurrence Type: Accident


Narrative (Continued)


TESTS AND RESEARCH

Recorded radar data received from the FAA's Seattle Air Route Traffic Control Center (ARTCC) indicated, in pertinent part, that between 1303 and 1307 the airplanes altitude was 33,000 feet. At 1307:56, the airplane's altitude decreased to 32,900 feet (lowest altitude recorded during the mishap). Thereafter, at 1308:08, the altitude increased to 33,200 feet (highest altitude recorded during the mishap). At 1308:32, the airplane was again recorded at 33,000 feet. There were no other excursions during this portion of the airplanes flight.

The airplane's flight data recorder was read out. In part, the data indicated that the airplane had experienced a vertical flight path deviation between 1307:25 and 1308:33. Specifically, between 1307:45 and 1308:05, the airplane's 33,000-foot cruise altitude decreased to a low of about 32,850 feet, and then it increased to about 33,230 feet.

The National Transportation Safety Board investigator reviewed the audio tape recording of communications between the accident airplane's flight crew and the ARTCC controller between 1257 and 1308. During this interval of time, no aircraft reported experiencing turbulence in the accident area.

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		Occurrence Date: 08/09/2001				
		Occurrence Type: Accident				
Landing Facility/Approach Information						
Airport Name		Airport ID:	Airport Elevation Ft. MSL	Runway Used	Runway Length	Runway Width
Runway Surface Type: Unknown						
Runway Surface Condition: Unknown						
Type Instrument Approach: Unknown						
VFR Approach/Landing: Unknown						
Aircraft Information						
Aircraft Manufacturer Boeing		Model/Series 737-500		Serial Number 24189		
Airworthiness Certificate(s): Transport						
Landing Gear Type: Tricycle						
Homebuilt Aircraft? No		Number of Seats: 130	Certified Max Gross Wt. 134000 LBS		Number of Engines: 2	
Engine Type: Turbo Fan		Engine Manufacturer: General Electric		Model/Series: CFM-56	Rated Power: 20000 LBS	
- Aircraft Inspection Information						
Type of Last Inspection Continuous Airworthiness		Date of Last Inspection 08/2001	Time Since Last Inspection 44 Hours		Airframe Total Time 33156 Hours	
- Emergency Locator Transmitter (ELT) Information						
ELT Installed? No		ELT Operated?		ELT Aided in Locating Accident Site?		
Owner/Operator Information						
Registered Aircraft Owner SOUTHWEST AIRLINES COMPANY		Street Address 2702 Love Field Dr., P.O. Box 36611				
		City Dallas		State TX	Zip Code 75235	
Operator of Aircraft Same as Reg'd Aircraft Owner		Street Address 2833 Shorecrest Drive				
		City Dallas		State TX	Zip Code 75235	
Operator Does Business As:				Operator Designator Code: SWAA		
- 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						

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: LAX01LA275
	Occurrence Date: 08/09/2001
	Occurrence Type: Accident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 55
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Sex: M	Seat Occupied: Left	Principal Profession: Civilian Pilot	Certificate Number: On File
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Certificate(s): Airline Transport

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

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): None

Type Rating/Endorsement for Accident/Incident Aircraft? Yes	Current Biennial Flight Review? 07/2001
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Medical Cert.: Class 1	Medical Cert. Status: None	Date of Last Medical Exam: 06/2001
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- 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	20000	11144	3000	17000						
Pilot In Command(PIC)	15000	8310	3000	12000						
Instructor										
Last 90 Days	125	125		125						
Last 30 Days	52	52		52						
Last 24 Hours	5	5		5						

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed? No	Second Pilot? Yes
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Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

Departure Point PORTLAND	State OR	Airport Identifier PDX	Departure Time 1235	Time Zone PDT
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Destination SACRAMENTO	State CA	Airport Identifier SMF	
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Type of Clearance: IFR

Type of Airspace: Class A

Weather Information

Source of Briefing: Company

Method of Briefing: In Person

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Weather Information

WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
LMT	1253	PDT	4095 Ft. MSL	77 NM	156 Deg. Mag.
Sky/Lowest Cloud Condition: Few			5000 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: None			Ft. AGL	Visibility: 10 SM	Altimeter: 30.08 "Hg
Temperature: 32 °C	Dew Point: 11 °C	Wind Direction:		Density Altitude: Ft.	
Wind Speed: Calm	Gusts:	Weather Conditions at Accident Site: Visual Conditions			
Visibility (RVR): Ft.	Visibility (RVV) SM	Intensity of Precipitation:			
Restrictions to Visibility: None					
Type of Precipitation: None					

Accident Information

Aircraft Damage: None	Aircraft Fire: None	Aircraft Explosion: None
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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	3
Other Crew				3	3
Passengers				122	122
- TOTAL ABOARD -		1		129	130
Other Ground					
- GRAND TOTAL -		1		129	130

National Transportation Safety Board

FACTUAL REPORT

AVIATION



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Occurrence Date: 08/09/2001

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

WAYNE POLLACK

Additional Persons Participating in This Accident/Incident Investigation:

Steve Badger
Inspector
FAA Flt Standards Dist Office
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