Turbulence injuries, Boeing 737-500, November 1, 2003

Micro-summary: This Boeing 737-500 encountered turbulence on descent. Two people were injured.

Event Date: 2003-11-01 at 1215 MST

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

Investigative Body's Web Site: http://www.ntsb.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.
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www.fss.aero

NTSB ID: DEN04LA019 Aircraft Registration Number: N956UA

Occurrence Date: 11/01/2003 Most Critical Injury: Serious

Occurrence Type: Accident Investigated By: NTSB

Location/Time

Nearest City/Place	State	Zip Code	Local Time	Time Zone	
Denver	со	80249	1215	MST	
Airport Proximity: Off Airport/Airstrip	Distance From	n Landing Facility:		Direction Fro	m Airport:

Aircraft Information Summary

All craft information burninary		
Aircraft Manufacturer	Model/Series	Type of Aircraft
Boeing	737-500	Airplane

Sightseeing Flight: No Air Medical Transport Flight: No

Narrative

Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:

On November 1, 2003, at approximately 1215 mountain standard time, a Boeing 737-500, N956UA, operated by United Airlines as flight 1232, encountered turbulence while on approach to Denver International Airport (DEN), Denver, Colorado. The airline transport captain and airline transport first-officer, 1 flight attendant, and 92 passengers were not injured; however, 1 flight attendant was seriously injured and 1 flight attendant received minor injuries. Instrument meteorological conditions prevailed. The scheduled domestic passenger flight was being conducted under the provisions of Title 14 CFR Part 121. An instrument flight rules flight plan had been filed for the flight from Boise, Idaho, to Denver, Colorado, departed at 1045.

At flight level (FL) 310, air traffic control advised the captain that light to moderate turbulence existed between FL170 and FL 200. The flight crew directed the passengers to take their seats and fasten their seatbelts. During the descent, at FL 240, the captain asked the cabin crew to take their seats. At FL 210, the flight encountered "heavy to moderate turbulence with two rapid up-down vertical-G cycles." One flight attendant received minor injuries and another flight attendant received a fractured ankle. The flight continued to Denver without further incident.

NTSB ID: DEN04LA019

Occurrence Date: 11/01/2003

Aircraft Information Aircraft Manufacturer Boeing Airworthiness Certificate(s): Transport Landing Gear Type: Retractable - Tricycle Homebuilt Aircraft? No Number of Seats: 123 Certified Max Gross Wt. 122500 LBS Number of Engines: 2 Engine Type: Turbo Fan CFM International CFM Seats Inspection Type of Last Inspection Continuous Airworthiness Date of Last Inspection Continuous Airworthiness O2/2003 Time Since Last Inspection Airframe Total Time Continuous Airworthiness - Emergency Locator Transmitter (ELT) Information	AVIATION Occurrer					ence Type: Accident								
Airport Name	Landing Facility/Approach Inf	formation												
Runway Surface Type: Unknown Runway Surface Condition: Unknown Type Instrument Approach: NONE VFR Approach/Landing: None Aircraft Information Aircraft Manufacturer Boeing Model/Series 737-500 Serial Number 26704 Airworthiness Certificate(s): Transport Landing Gear Type: Retractable - Tricycle Homebuilt Aircraft No Number of Seats: 123 Certified Max Gross Wt. 122500 LBS Number of Engines: 2 Engine Type: Engine Manufacturer: Model/Series: Rated Power: 20000 LBS - Aircraft Inspection Information Continuous Airworthiness - Date of Last Inspection Continuous Airworthiness - EltT Aided in Locating Accident Site? No Owner/Operator Information Registered Aircraft Owner Wilmington Trust Company Street Address P.O. Box 66100 City Chicago Figure Value Operator Does Business As: Operator Does Business As: Operator Does Business As: Operator Code: UALA			П	Airpor	rt ID:	Airport Eleva	ation	Run	way Used	Runwa	ay Lengt	h	Runv	vay Width
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Chicago IL 60666 Operator Does Business As: Operator Designator Code: UALA	· •												е	Zip Code
	CHITED AND LINES INC											<u> </u>		60666
- Type of U.S. Certificate(s) Held:														
N. O. J. C. J. J. C. J. Flog Cowiew/Demostic		Floa Carrior/Dow	a a a ti a											
Air Carrier Operating Certificate(s): Flag Carrier/Domestic	Air Carrier Operating Certificate(s):	Flag Camer/Don	iesiic											
Operating Certificate: Operator Certificate:	Operating Certificate:					Operator	Certifi	cate:						
Regulation Flight Conducted Under: Part 121: Air Carrier	Regulation Flight Conducted Under	: Part 121: Air Ca	rrier											
Type of Flight Operation Conducted: Scheduled; Domestic; Passenger Only	Type of Flight Operation Conducted	: Scheduled; Dor	nestic;	Pass	enger	Only								
FACTUAL REPORT - AVIATION Page 2			FACTI	UAL I	REPOI	RT - AVIAT	ION							Page 2

NTSB ID: DEN04LA019

Occurrence Date: 11/01/2003

	AVIATI	Occurrence Type: Accident												
First Pilot Ir	nformation													
Name						City					State	Da	te of Birth	Age
On File						On Fil	le				On File	0	n File	45
Sex: M	Seat Occupied	: Left	Prir	ncipal Profes	sion: Civiliar	n Pilot				Cert	ificate N	umber:	On File	
Certificate(s):	Airlir	ne Transpor	t; Flight Eng	jineer						•				
Airplane Ratir	ng(s): Multi	i-engine Lar	nd; Single-e	ngine Land										
Rotorcraft/Glid	der/LTA: None	е												
Instrument Ra	Instrument Rating(s): Airplane													
Instructor Rat	ing(s): None	е												
Type Rating/Endorsement for Accident/Incident Aircraft? Yes Current Biennial Flight Review? 07/2003														
Medical Cert.: Class 1 Medical Cert. Status: Valid Medicalno waivers							lim.		Da	ite of La	st Medic	al Exar	m: 06/2003	
- Flight Time Matrix All A/C This Make and Model			Airplane Single Engine	Airplane Mult-Engine	Nig	Night Ins Actual		Instrument Simulated		Rotoro	raft	Glider	Lighter Than Air	
Total Time		4751	1838						_					
Pilot In Comm	and(PIC)		1838						_					
Instructor									+		_			
Last 90 Days		246	246											
Last 30 Days		90	90						_					
Last 24 Hours		6	6			<u> </u>						1		
Seatbelt Used	d? Yes	Shou	ılder Harness	Used? Yes			Toxico	ology Perf	ormed	l? No		Seco	nd Pilot? Ye	S
Flight Plan/	Itinerary													
Type of Flight	Plan Filed: IF	R												
Departure Poi	int						State	А	Airport Identifier		. De	Departure Time		Time Zone
Boise							ID	В	BOI		10	1045		MST
Destination							State	А	Airport Identifier					
								EN						
Type of Clear	ance: IFR					'		'						
Type of Airspa	ace: Class	A												
Weather In	formation													
Source of Bri	efing: Compa	any												
Method of Bri	iefing: Aircraf	t Radio; Tel	letype											
				FACTUAL	REPORT -	- AVIA	ATION	١						Page 3

NTSB ID: DEN04LA019

Occurrence Date: 11/01/2003

Occurrence Type: Accident

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Weather Information														
WOF ID	Observation Time	Time Zone	WOF E	levation		WOF Dis	Direction					Pirection From Accident Site		
DEN	1153	MST	543	31 Ft. MS	SL				NM		Deg. Mag.			
Sky/Lowes	st Cloud Condition: Thin	Overcast					500 Ft. AG	iL	Condition o	f Ligh	nt: Day			
Lowest Ce	iling: Overcast		50	00 Ft. AGI	L	Visibil	lity:	4	SM	Altii	meter:	29.95	"Hg	
Temperatu	ure: -1 °C	Dew Point:	-1	°C W	Vind D	Direction:	300			Dei	nsity Altitude:	4907	Ft.	
Wind Spee	ed: 7	Gusts:		V	/eath	er Condti	ons at Accid	dent S	ite: Visual C	Cond	itions			
Visibility (F	RVR): Ft.	Visibility (RVV) SM Intensity of Precipitation:												
Restrictions to Visibility: Fog														
Type of Precipitation: None														
Accident Information														
Aircraft Da	mage: None		Aircra	aft Fire: N	lone				Aircraft Exp	losio	n None			
Classificati	ion: U.S. Registered/U	.S. Soil												
- Injury Su	mmary Matrix	Fatal S	erious	Minor	1	None	TOTAL							
First Pi	ilot					1	1							
Second	d Pilot					1	1							
Studen	nt Pilot													
Flight I	nstructor													
Check	Pilot													
Flight E	Engineer													
Cabin /	Attendants		1		1	1	3							
Other (Crew													
Passer	ngers					92	92							
- TOTAL A	ABOARD -		1		1	95	97							
Other (Ground													
- GRANE	O TOTAL -		1		1	95	97							
			•		•									

National Transportation Safety Board

FACTUAL REPORT AVIATION NTSB ID: DEN04LA019

Occurrence Date: 11/01/2003

Occurrence Type: Accident

	strative		

Investigator-In-Charge (IIC)

James F. Struhsaker

Additional Persons Participating in This Accident/Incident Investigation:

John Stevenson Air Safety Inspector FAA FSDO Denver, CO 80249