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## Turbulence injuries, Boeing 747-422, September 14, 1997

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**Micro-summary:** This Boeing 747-422 experienced turbulence during cruise, seriously injuring a flight attendant and injuring a passenger.

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**Event Date:** 1997-09-14 at 1424 CDT


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


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


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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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 <b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b>		NTSB ID: CHI97LA292		Aircraft Registration Number: N175UA	
		Occurrence Date: 09/14/1997		Most Critical Injury: Serious	
		Occurrence Type: Accident		Investigated By: NTSB	
<b>Location/Time</b>					
Nearest City/Place GRAND FORKS		State ND	Zip Code 58201	Local Time 1424	Time Zone CDT
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
<b>Aircraft Information Summary</b>					
Aircraft Manufacturer Boeing		Model/Series 747-422		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
<b>Narrative</b>					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
<p>On September 14, 1997, at 1424 central daylight time, a Boeing 747-422, N175UA, operating as United Airlines Flight 881, experienced turbulence while in cruise flight near Grand Forks, North Dakota. One flight attendant sustained serious injuries and one passenger received minor injuries. Eighteen cabin attendants and 300 passengers reported no injuries. The airplane received no damage. The international flight departed Chicago, Illinois, at 1302 with the intended destination of Narita, Japan. A Federal Aviation Administration inspector indicated that a SIGMET (43C) was in effect at the time of the accident forecasting the chance of severe turbulence in the area of the encounter.</p> <p>According to written statements, the Captain was at the controls. An area of precipitation was noted on radar which was approximately 50 miles ahead of the airplane. About 15 minutes prior to encountering IMC conditions, the flight crew turned on the "Fasten Seat Belt" signs, and a verbal announcement was made in English and Japanese for the passengers to return to their seats and fasten their seat belts. The statements indicate that the flight deviated to avoid the precipitation; however, the flight was in IMC conditions with continuous light chop. After passing the displayed precipitation, and during a turn back to intercept the original course, the crew reported encountering three to four seconds of "moderate" chop. A few minutes later they were notified by cabin attendants of one passenger injury which occurred which the passenger was not seated. A decision was then made to divert to Minneapolis, Minnesota. The crew stated that they were later informed of an injury sustained by a flight attendant to her knee.</p> <p>After the landing at Minneapolis, it was determined the passenger had received minor injuries; however, the flight attendant's injuries were serious. None of the flight crew reported any injuries. An inspection of the airplane revealed no damage.</p> <p>The flight crew had received a company weather briefing prior to departure from Chicago. SIGMET (43C) which was in effect at the time and indicated the chance of severe turbulence in the area of the turbulence encounter.</p>					
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 <b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b>		NTSB ID: CHI97LA292			
		Occurrence Date: 09/14/1997			
		Occurrence Type: Accident			
<b>Landing Facility/Approach Information</b>					
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:					
<b>Aircraft Information</b>					
Aircraft Manufacturer Boeing		Model/Series 747-422		Serial Number 24382	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 327	Certified Max Gross Wt.	873600 LBS	Number of Engines: 4	
Engine Type: Turbo Fan	Engine Manufacturer: P&W	Model/Series: 4056 L	Rated Power: 56000 LBS		
- Aircraft Inspection Information					
Type of Last Inspection Continuous Airworthiness	Date of Last Inspection 03/1997	Time Since Last Inspection 2132 Hours	Airframe Total Time 30275 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? No	ELT Operated?	ELT Aided in Locating Accident Site?			
<b>Owner/Operator Information</b>					
Registered Aircraft Owner WILMINGTON TRUST COMPANY		Street Address 11TH & MARKET STS			
		City WILMINGTON	State DE	Zip Code 19890	
Operator of Aircraft UNITED AIRLINES		Street Address O'HARE AIRPORT			
		City CHICAGO	State IL	Zip Code 60666	
Operator Does Business As: UNITED AIRLINES			Operator Designator Code: UALA		
- 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; International; Passenger/Cargo					

 <p><b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b></p>	NTSB ID: CHI97LA292
	Occurrence Date: 09/14/1997
	Occurrence Type: Accident

**First Pilot Information**

Name On File	City On File	State On File	Date of Birth	Age
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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; Flight Engineer

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?
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Medical Cert.: Class 1	Medical Cert. Status: Valid Medical--no waivers/lim.	Date of Last Medical Exam: 04/1997
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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	20086	1660								
Pilot In Command(PIC)		1660								
Instructor										
Last 90 Days		162								
Last 30 Days		83								
Last 24 Hours		1								

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 CHICAGO	State IL	Airport Identifier ORD	Departure Time 1302	Time Zone CDT
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Destination NARITA	State OF	Airport Identifier RJAA	
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Type of Clearance: IFR

Type of Airspace: Class A

**Weather Information**

Source of Briefing: Company

Method of Briefing:

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<b>Weather Information</b>					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
	0000		0 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Unknown			0 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: Unknown		0 Ft. AGL	Visibility: 0 SM	Altimeter: "Hg	
Temperature: °C	Dew Point: °C	Wind Direction:		Density Altitude: Ft.	
Wind Speed:	Gusts:	Weather Conditions at Accident Site: Instrument Conditions			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	Intensity of Precipitation: Unknown			
Restrictions to Visibility:					
Type of Precipitation: None					

<b>Accident Information</b>		
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		18	19
Other Crew				2	2
Passengers			1	300	301
- TOTAL ABOARD -		1	1	322	324
Other Ground	0	0	0		0
- GRAND TOTAL -	0	1	1	322	324

National Transportation Safety Board

**FACTUAL REPORT**

**AVIATION**



NTSB ID: CHI97LA292

Occurrence Date: 09/14/1997

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

STEPHEN A. WILSON

Additional Persons Participating in This Accident/Incident Investigation:

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MINNEAPOLIS, MN 55450