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## Turbulence injuries, McDonnell Douglas DC-9-81, August 7, 2003

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**Micro-summary:** This McDonnell Douglas DC-9-81 encountered severe turbulence in cruise, injuring several people.

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**Event Date:** 2003-08-07 at 1449 MDT


**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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		NTSB ID: DEN03LA142		Aircraft Registration Number: N814ME	
		Occurrence Date: 08/07/2003		Most Critical Injury: Serious	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Greeley		State CO	Zip Code 80631	Local Time 1449	Time Zone MDT
Airport Proximity:		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer McDonnell Douglas		Model/Series DC-9-81		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>On August 7, 2003, at 1449 mountain daylight time, a McDonnell Douglas DC-9-81, N814ME, registered to and operated by Midwest Airlines, Inc., as flight 9, encountered severe turbulence 5 miles north of the Gill VORTAC, Greeley, Colorado. The 2 pilots, 1 flight attendant and 110 passengers were uninjured; however, 2 flight attendants were seriously injured and 3 passengers received minor injuries. The scheduled domestic passenger flight was being conducted under the provisions of Title 14 CFR Part 121. Instrument meteorological conditions prevailed and an IFR flight plan had been filed. The flight originated at San Francisco, California, at approximately 1255.</p> <p>According to the captain, during cruise flight at 33,000 feet, the aircraft encountered moderate to severe turbulence. The flight was deviating to the south of course to avoid weather. Upon breaking out of a cloud layer, the captain noted a cumulous cloud ahead that could not be avoided. Upon entering the cloud, the airplane encountered severe turbulence. Turbulence had not been forecasted. The seat belt sign had been illuminated for approximately 20 minutes.</p>					
FACTUAL REPORT - AVIATION					
Page 1					

 <b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b>		NTSB ID: DEN03LA142				
		Occurrence Date: 08/07/2003				
		Occurrence Type: Accident				
<b>Landing Facility/Approach Information</b>						
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						
<b>Aircraft Information</b>						
Aircraft Manufacturer McDonnell Douglas		Model/Series DC-9-81		Serial Number 48010		
Airworthiness Certificate(s): Transport						
Landing Gear Type: Retractable - Tricycle						
Homebuilt Aircraft? No		Number of Seats: 124	Certified Max Gross Wt. 142000 LBS		Number of Engines: 2	
Engine Type: Turbo Jet		Engine Manufacturer: Pratt & Whitney		Model/Series: JT8D-217C	Rated Power: 18000 LBS	
- Aircraft Inspection Information						
Type of Last Inspection Continuous Airworthiness		Date of Last Inspection 07/2003	Time Since Last Inspection 295.03 Hours		Airframe Total Time 45993.5 Hours	
- Emergency Locator Transmitter (ELT) Information						
ELT Installed? No		ELT Operated? No		ELT Aided in Locating Accident Site? No		
<b>Owner/Operator Information</b>						
Registered Aircraft Owner Midwest Airlines Inc		Street Address 6744 South Howell Avenue				
		City Oak Creek		State WI	Zip Code 53154	
Operator of Aircraft Same as Reg'd Aircraft Owner		Street Address Same as Reg'd Aircraft Owner				
		City		State	Zip Code	
Operator Does Business As:				Operator Designator Code: MMEA		
- 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><b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b></p>	NTSB ID: DEN03LA142
	Occurrence Date: 08/07/2003
	Occurrence Type: Accident

**First Pilot Information**

Name On File	City On File	State On File	Date of Birth On File	Age 47
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Sex: M	Seat Occupied: Rear	Principal Profession: Civilian Pilot	Certificate Number: On File
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Certificate(s): Airline Transport; Commercial

Airplane Rating(s): Multi-engine Land

Rotorcraft/Glider/LTA:

Instrument Rating(s): Airplane

Instructor Rating(s): None

Type Rating/Endorsement for Accident/Incident Aircraft? Yes	Current Biennial Flight Review? 06/2003
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Medical Cert.: Class 1	Medical Cert. Status: Valid Medical--w/ waivers/lim.	Date of Last Medical Exam: 06/2003
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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	17400	11900	2000	14000	8000	1700				
Pilot In Command(PIC)	15000	10500	1700	11000	7500	1300				
Instructor	1000	500	1000	500	200	50				
Last 90 Days	270	70		70	25	5				
Last 30 Days	80	25		25	10	2				
Last 24 Hours	2	2		2						

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 San Francisco	State CA	Airport Identifier SFO	Departure Time 1355	Time Zone PST
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Destination Kansas City	State KS	Airport Identifier MCI	
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Type of Clearance: IFR

Type of Airspace: Class A

**Weather Information**

Source of Briefing: Company

Method of Briefing: Teletype

 <p><b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b></p>	NTSB ID: DEN03LA142
	Occurrence Date: 08/07/2003
	Occurrence Type: Accident

<b>Weather Information</b>					
WOF ID	Observation Time	Time Zone	WOF Elevation Ft. MSL	WOF Distance From Accident Site NM	Direction From Accident Site Deg. Mag.
Sky/Lowest Cloud Condition: Clear			Ft. AGL	Condition of Light: Day	
Lowest Ceiling: None		Ft. AGL	Visibility: 0	SM	Altimeter: 29.92 "Hg
Temperature: -25 °C	Dew Point: °C	Wind Direction:		Density Altitude: Ft.	
Wind Speed:	Gusts:	Weather Conditions at Accident Site: Instrument Conditions			
Visibility (RVR): Ft.	Visibility (RVV) SM	Intensity of Precipitation:			
Restrictions to Visibility: Haze					
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		2		1	3
Other Crew					
Passengers			3	110	113
- TOTAL ABOARD -		2	3	113	118
Other Ground					
- GRAND TOTAL -		2	3	113	118

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National Transportation Safety Board

**FACTUAL REPORT**

**AVIATION**



NTSB ID: DEN03LA142

Occurrence Date: 08/07/2003

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

James F. Struhsaker

Additional Persons Participating in This Accident/Incident Investigation:

Jim Mack  
Air Safety Inspector  
FAA FSDO  
Denver, CO 80249