
Wake turbulence injury, January 15, 1999

Micro-summary: This Douglas DC-9 encountered wake turbulence from a preceding 747, injuring a flight attendant.

Event Date: 1999-01-15 at 1120 EST


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: NYC99LA050		Aircraft Registration Number: N300ME	
		Occurrence Date: 01/15/1999		Most Critical Injury: Serious	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place PLAINFIELD		State PA	Zip Code 17081	Local Time 1120	Time Zone EST
Airport Proximity: Unknown		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Douglas		Model/Series DC-9		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>On January 15, 1999, about 1120, eastern standard time, a Douglas DC-9, N300ME, operated by Midwest Express Airlines as flight 150, encountered wake turbulence while descending through flight level 235 over Plainfield, Pennsylvania. The airplane was not damaged. Two flight crewmembers, 2 flight attendants, and 55 passengers were not injured. A third flight attendant sustained a serious injury to her right ankle. Visual meteorological conditions prevailed, and an instrument flight rules flight plan had been filed for the scheduled passenger flight that departed General Mitchell International Airport (MKE), Milwaukee, Wisconsin, destined for Philadelphia International Airport, Philadelphia, Pennsylvania. The flight was conducted under 14 CFR Part 121.</p> <p>The captain stated that they departed MKE at 1010, and climbed to flight level 290. About 1 hour and 35 minutes after departure, he was cleared by air traffic control (ATC) to 17,000 feet msl. Upon receiving the clearance, he briefed the first officer he would to stay above a proceeding Boeing 747 descent path. The Boeing 747 was 12 nautical miles ahead and also descending to 17,000 feet MSL. The captain then initiated approximately a 3,500 foot per minute descent and slowed to 280 knots. While in the descent and passing flight level 235, the airplane encountered a "moderate jolt" which the captain assumed was from the Boeing 747. The captain pitched the airplane's nose up to exit the turbulence, and requested additional separation between the two airplanes from ATC. The flight continued to its schedule destination without further incident.</p> <p>During the wake turbulence encounter, a flight attendant in the galley slipped and seriously injured her right ankle. A passenger, who was also a registered nurse, applied ice, and splinted the injured ankle. The flight attendant was then seated in the aft jump-seat for landing.</p> <p>Radar data revealed that the accident airplane was about 2 minutes in trail, 1,000 feet below, and 3 miles to the north of the Boeing 747. Radiosonde data recorded about 23,000 feet over Pittsburgh, Pennsylvania, at 0700, showed the winds were 195 degrees at 90 knots.</p> <p>According to the 1998, Aeronautical Information Manual (AIM), "Flight tests have shown that the vortices from larger (transport category) aircraft sink at a rate of several hundred feet per minute, slowing their descent and diminishing in strength with time and distance behind the generating aircraft."</p>					
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 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>		NTSB ID: NYC99LA050			
		Occurrence Date: 01/15/1999			
		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: NONE					
VFR Approach/Landing: None					
Aircraft Information					
Aircraft Manufacturer Douglas		Model/Series DC-9		Serial Number 45718	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 64	Certified Max Gross Wt.	90700 LBS	Number of Engines: 2	
Engine Type: Turbo Fan	Engine Manufacturer: P&W	Model/Series: JT8D-7B	Rated Power: 14000 LBS		
- Aircraft Inspection Information					
Type of Last Inspection Continuous Airworthiness	Date of Last Inspection 01/1999	Time Since Last Inspection 15 Hours	Airframe Total Time 65241 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? No	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner MIDWEST EXPRESS AIRLINES		Street Address 4501 ABBOTT DRIVE			
		City OMAHA	State NE	Zip Code 68110	
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: MIDWEST EXPRESS AIRLINES			Operator Designator Code: MWE		
- 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/Cargo					

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: NYC99LA050
	Occurrence Date: 01/15/1999
	Occurrence Type: Accident

First Pilot Information				
Name On File	City On File	State On File	Date of Birth On File	Age 39

Sex: M	Seat Occupied: Left	Principal Profession: Civilian Pilot	Certificate Number: On File
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Certificate(s): Airline Transport; Commercial

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?

Medical Cert.: Class 1	Medical Cert. Status: Valid Medical--no waivers/lim.	Date of Last Medical Exam: 07/1998
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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	10039	3367	2630	10037	1357	775		2		
Pilot In Command(PIC)	3816	513	2518	1298						
Instructor	386		386							
Last 90 Days	136	136		136	48	10				
Last 30 Days	78	78		78	31	7				
Last 24 Hours	6	6		6		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	
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Departure Point MILWAUKEE	State WI	Airport Identifier MKE	Departure Time 1010	Time Zone EST
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Destination PHILADELPHIA	State PA	Airport Identifier PHL	
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Type of Clearance: IFR

Type of Airspace: Class A

Weather Information

Source of Briefing:

Method of Briefing:

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: NYC99LA050
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Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
PIT	1120	EST	1137 Ft. MSL	130 NM	276 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			1300 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: Broken		2500 Ft. AGL		Visibility: 4 SM	Altimeter: 30.00 "Hg
Temperature: -9 °C	Dew Point: -11 °C	Wind Direction: 240		Density Altitude: Ft.	
Wind Speed: 9	Gusts:	Weather Conditions at Accident Site: Visual 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	3
Other Crew					
Passengers				55	55
- TOTAL ABOARD -		1		59	60
Other Ground	0	0	0		0
- GRAND TOTAL -	0	1	0	59	60

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: NYC99LA050

Occurrence Date: 01/15/1999

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

DAVID S. MUZIO

Additional Persons Participating in This Accident/Incident Investigation:

LYLE STREETER

AAI-100

WASHINGTON, DC