
Failure of nose gear actuator and loss of pressurization, McDonnell Douglas MD-88, May 13, 2005

Micro-summary: This McDonnell Douglas MD-88 experienced a failure of the nose gear actuator and a penetration of the forward pressure bulkhead, resulting in loss of pressurization.


Event Date: 2005-05-13 at 1820 MDT


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: DEN05LA077		Aircraft Registration Number: N949DL	
		Occurrence Date: 05/13/2005		Most Critical Injury: None	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Denver		State CO	Zip Code 80019	Local Time 1820	Time Zone MDT
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer McDonnell Douglas		Model/Series MD-88		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 May 13, 2005, approximately 1820 mountain daylight time, a McDonnell-Douglas MD-88, N949DL, operated by Delta Air Lines as flight 664, was substantially damaged when the forward pressure bulkhead was penetrated by the nose landing gear actuator rod during initial climb near Denver, Colorado. Visual meteorological conditions prevailed at the time of the accident. The flight was being conducted on an instrument flight rules flight plan under the provisions of 14 CFR Part 121. The 2 pilots, 3 flight attendants, and 93 passengers were not injured. The flight originated at Denver International Airport (DEN), Denver, Colorado, and was en route to Hartsfield International Airport (ATL), Atlanta, Georgia.</p> <p>Shortly after takeoff, the pilots heard a loud bang and the cabin lost pressurization. The pilots observed an unsafe nose gear indication. They placed the gear handle in the down position and got three green lights. The control tower confirmed that the landing gear were down when the aircraft performed a low pass. The flight made an uneventful landing at Denver</p> <p>Post-accident examination by maintenance personnel revealed a hole in the forward pressure bulkhead and broken nose gear actuator. The nose landing gear actuator piston rod had worn threads, and a key locking washer in the gear assembly was sheared. At the time of the accident, the aircraft had accumulated 41,789.9 hours and 32,669 cycles. According to Delta Air Lines, there was no maintenance history on the actuator, and they believed it was original equipment when the aircraft was delivered in February 1990.</p> <p>An FAA Airworthiness Directive required the material composition of the nose landing gear lock link be determined. Delta Air Lines provided maintenance records proving the aircraft was in compliance with this Directive.</p>					
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 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: DEN05LA077			
		Occurrence Date: 05/13/2005			
		Occurrence Type: Accident			
Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
Denver International	DEN	5431 Ft. MSL	NA		
Runway Surface Type:					
Runway Surface Condition:					
Type Instrument Approach: Unknown					
VFR Approach/Landing: Unknown					
Aircraft Information					
Aircraft Manufacturer		Model/Series		Serial Number	
McDonnell Douglas		MD-88		49880	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 150	Certified Max Gross Wt.	149500 LBS	Number of Engines: 2	
Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:		
Turbo Fan	Pratt & Whitney	JT8D-219	21000 LBS		
- Aircraft Inspection Information					
Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time		
Continuous Airworthiness	05/2005	Hours	41789 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner		Street Address			
On File		On File			
		City	State	Zip Code	
		Atlanta	GA	30320	
Operator of Aircraft		Street Address			
Same as Reg'd Aircraft Owner		Same as Reg'd Aircraft Owner			
		City	State	Zip Code	
Operator Does Business As:			Operator Designator Code: DALA		
- 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>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: DEN05LA077
	Occurrence Date: 05/13/2005
	Occurrence Type: Accident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 45
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Sex: M	Seat Occupied: Left	Principal Profession: Occupational Pilot	Certificate Number: On File
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Certificate(s): Airline Transport; Flight Engineer

Airplane Rating(s): Multi-engine Land

Rotorcraft/Glider/LTA:

Instrument Rating(s): Airplane

Instructor Rating(s): None

Type Rating/Endorsement for Accident/Incident Aircraft?	Current Biennial Flight Review? 12/2004
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Medical Cert.: Class 1	Medical Cert. Status: Without Waivers/Limitations	Date of Last Medical Exam: 01/2005
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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	7774	681								
Pilot In Command(PIC)										
Instructor										
Last 90 Days		111								
Last 30 Days										
Last 24 Hours		3								

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 Denver	State CO	Airport Identifier DEN	Departure Time 1807	Time Zone MDT
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Destination Atlanta	State GA	Airport Identifier ATL	
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Type of Clearance: IFR

Type of Airspace:

Weather Information

Source of Briefing:

Method of Briefing:

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Weather Information

WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
DEN	1753	MDT	5431 Ft. MSL	NM	Deg. Mag.

Sky/Lowest Cloud Condition: Few	8000 Ft. AGL	Condition of Light: Not Reported
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Lowest Ceiling: None	Ft. AGL	Visibility: 10	SM	Altimeter: 30.12	"Hg
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Temperature: 17 °C	Dew Point: -1 °C	Wind Direction: 40	Density Altitude: Ft.
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Wind Speed: 8	Gusts:	Weather Conditions at Accident Site: Visual Conditions
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Visibility (RVR): Ft.	Visibility (RVV) SM	Intensity of Precipitation:
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Restrictions to Visibility:

Type of Precipitation:

Accident Information

Aircraft Damage: Substantial	Aircraft Fire: None	Aircraft Explosion: None
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Classification:

- 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				3	3
Other Crew					
Passengers				93	93
- TOTAL ABOARD -				98	98
Other Ground					
- GRAND TOTAL -				98	98

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: DEN05LA077

Occurrence Date: 05/13/2005

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

Arnold W. Scott

Additional Persons Participating in This Accident/Incident Investigation:

Gregory A Jones

Denver