
**Tire tread separation and engine damage, McDonnell Douglas DC-10-10,
March 24, 1998**

Micro-summary: On takeoff, a tire tread on this McDonnell Douglas DC-10-10 went through the #1 engine and another punctured the left wing.


Event Date: 1998-03-24 at 2008 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: FTW98IA158		Aircraft Registration Number: N1836U	
		Occurrence Date: 03/24/1998		Most Critical Injury: None	
		Occurrence Type: Incident		Investigated By: NTSB	
Location/Time					
Nearest City/Place DENVER		State CO	Zip Code 80249	Local Time 2008	Time Zone MDT
Airport Proximity: On Airport		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer McDonnell Douglas		Model/Series DC-10-10		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 March 24, 1998, at 2008 mountain daylight time, a McDonnell Douglas DC-10-10, N1836U, operated by United Airlines as flight 1197, from Denver, Colorado, to Seattle, Washington, sustained minor damage during takeoff roll when a tire failed. None of the 299 persons aboard the aircraft were injured. The flight was operating under Title 14 CFR Part 121 and an IFR flight plan was filed. Visual meteorological conditions prevailed.</p> <p>The investigation provided information that during takeoff roll the number 2 left main tire failed. Part of the tire was ingested into the number 1 engine and part went into the left main wheel well. The flight deck crew operated the number one engine at reduced power due to vibration, and the flight returned to Denver, landing at 1834, after dumping 8,400 pounds of fuel.</p> <p>Following landing, the brakes froze due to overheating and the passengers were deplaned and taken to the terminal via bus. After the left main landing gear wheels were replaced, the aircraft was towed to a United Airlines hangar where repairs were made.</p> <p>Postincident examination provided evidence of foreign object damage to the number one engine and two holes in the lower left wing skin above the left main landing gear wheel well.</p> <p>At the request of the Safety Board Investigator-In-Charge, an engineering analysis on the failed tire was conducted by United Airlines Engineering, utilizing Michelin/Goodrich Aircraft Tire Corporation's failure analysis laboratory. According to the attached failure analysis report, the tire failed as a result of elevated temperature and high levels of fatigue "probably" due to repeated retreading of the tire. As a precautionary measure, Michelin/Goodrich proposed that 50X20-20 DC-10 tires be limited to two retreads (R-2). United agreed and ceased to use tires which had more than the second retread. In addition, Michelin/Goodrich ceased to ship 50X20-20 tires which had more than the R-2 retread to its customer consignment points.</p>					
FACTUAL REPORT - AVIATION					

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: FTW98IA158				
		Occurrence Date: 03/24/1998				
		Occurrence Type: Incident				
Landing Facility/Approach Information						
Airport Name DENVER INTERNATIONAL		Airport ID: DEN	Airport Elevation 5431 Ft. MSL	Runway Used 17L	Runway Length 12000	Runway Width 150
Runway Surface Type: Concrete						
Runway Surface Condition: Dry						
Type Instrument Approach: Visual						
VFR Approach/Landing: Precautionary Landing						
Aircraft Information						
Aircraft Manufacturer McDonnell Douglas		Model/Series DC-10-10		Serial Number 3136		
Airworthiness Certificate(s): Transport						
Landing Gear Type: Retractable - Tricycle						
Homebuilt Aircraft? No		Number of Seats: 299	Certified Max Gross Wt. 383824 LBS		Number of Engines: 3	
Engine Type: Turbo Fan		Engine Manufacturer: GE		Model/Series: CF6-6	Rated Power: 40000 LBS	
- Aircraft Inspection Information						
Type of Last Inspection Continuous Airworthiness		Date of Last Inspection 03/1998	Time Since Last Inspection 5 Hours		Airframe Total Time 13321 Hours	
- Emergency Locator Transmitter (ELT) Information						
ELT Installed? No		ELT Operated?		ELT Aided in Locating Accident Site?		
Owner/Operator Information						
Registered Aircraft Owner UNITED AIRLINES		Street Address P. O. BOX 66100				
		City CHICAGO		State IL	Zip Code 60666	
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: 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; Domestic; Passenger Only						

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: FTW98IA158
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	Occurrence Type: Incident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 56
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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

Airplane Rating(s): Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): Airplane Multi-engine; Airplane Single-engine; Instrument Airplane

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: 08/1997
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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	15048	2476								
Pilot In Command(PIC)		2476								
Instructor										
Last 90 Days		171								
Last 30 Days		75								
Last 24 Hours		8								

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 Same as Accident/Incident Location	State	Airport Identifier DVX	Departure Time 1953	Time Zone MDT
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Destination SEATTLE	State WA	Airport Identifier SEA	
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Type of Clearance: IFR

Type of Airspace: Class B

Weather Information

Source of Briefing: Company

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	2053	MDT	5431 Ft. MSL	1 NM	270 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			25000 Ft. AGL	Condition of Light: Night/Dark	
Lowest Ceiling: None		0 Ft. AGL	Visibility: 10	SM	Altimeter: 29.00 "Hg
Temperature: 18 °C	Dew Point: 1 °C	Wind Direction: 60		Density Altitude: 7000 Ft.	
Wind Speed: 6	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: Minor	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				1	1
Cabin Attendants				7	7
Other Crew					
Passengers				289	289
- TOTAL ABOARD -				299	299
Other Ground	0	0	0		0
- GRAND TOTAL -	0	0	0	299	299

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: FTW98IA158

Occurrence Date: 03/24/1998

Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

NORMAN F. WIEMEYER

Additional Persons Participating in This Accident/Incident Investigation:

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