
Runway excursion, McDonnell Douglas DC-9-82, May 28, 2005

Micro-summary: This McDonnell Douglas DC-9-82 left the runway after touchdown.

Event Date: 2005-05-28 at 1620 MDT


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

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

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		NTSB ID: DEN05IA083		Aircraft Registration Number: N911TW	
		Occurrence Date: 05/28/2005		Most Critical Injury: None	
		Occurrence Type: Incident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Denver	State CO	Zip Code 80249	Local Time 1620	Time Zone MDT	
Airport Proximity: On Airport		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer McDonnell Douglas		Model/Series DC-9-82		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 May 28, 2005, at 1620 mountain daylight time, a McDonnell Douglas DC-9-82, N911TW, operating as American Airlines (AA) Flight 1125, departed the right side of runway 35R on landing at the Denver International Airport (DEN), Denver, Colorado. The airplane sustained minor damage when it struck a runway edge light during the landing roll. Visual meteorological conditions (VMC) prevailed at the time of the incident. The scheduled domestic passenger flight was being conducted on an instrument flight rules flight plan under the provisions of Title 14 Code of Federal Regulations Part 121. The captain, first officer, 3 flight attendants, and 109 passengers on board were not injured. The flight originated at the Dallas-Fort Worth International Airport, Fort Worth, Texas, at 1541 central daylight time, and was en route to DEN.</p>					
<p>According to the captain and first officer statements, they were cleared by air traffic control for the visual approach to runway 35R (12,000 feet in length by 150 feet in width). On final approach at 700-800 feet agl, an aural wind shear alert warning was sounded with no secondary system indications. The remainder of the approach was uneventful, and the approach was stabilized at 500 feet agl in VMC. The airplane touched down on runway centerline at the 10,000 foot runway marker. Shortly after the nose wheel touched down, the airplane drifted to the right. The crew attempted to correct the right drift by applying full left rudder, left aileron, and differential braking; however, the inputs were "no help." Prior to the airplane departing the runway surface, the crew applied both brakes to minimize the speed during the excursion. The flight crew maneuvered the airplane back onto the runway, and subsequently, the airplane came to rest on the left side of the runway.</p>					
<p>An examination of the runway by a Federal Aviation Administration inspector revealed skid marks from the left and right main and nose landing gear tires. The skid marks began near the center of the runway and continued to the right until the departure from the paved surface. The right main landing gear skid marks crossed over the base of the damaged runway edge light. Examination of the airplane revealed the #4 brake line (right main landing gear) was severed. On May 30th, the airplane was ferried to AA maintenance facility, Tulsa, Oklahoma, for further examination.</p>					
<p>According to AA maintenance records, a "Heavy 4 C-check" was completed in Tulsa on April 28, 2005. During the check, the nose landing gear (NLG) assembly was replaced. On the second functional check flight (FCF), the following discrepancy was reported, "...During alternate gear check with [alternate] gear handle extended, landing gear handle up, [engine hydraulic] pump high, aux pump and transfer pump off [nose wheel steering] tiller has no 4 [degree] restriction." Maintenance corrective action to that entry reported, "Re-rigged ground sense cable per MM 32-23-01-21 and rigged nose wheel steering push rods in cam slots per 32-51-01. [Operations] and rigged checked good..."</p>					
<p>A review of the aircraft maintenance logbook revealed that on May 1, 2005, a flight crew reported, "During landing roll, aircraft drifted to the right of runway. Full left rudder and left</p>					
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National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: DEN05IA083

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Occurrence Type: Incident

Narrative (Continued)

[differential] braking would not correct drift. Tiller used to correct drift." Maintenance corrective action to that entry reported, "Made adjustment and test of nose gear steering as per MM (Maintenance Manual) 32-50-00-2, functional check normal on taxi." On May 12, 2005, another flight crew reported, "Nose wheels are turned [approximately] 10 [degrees] right with steering tiller centered." Maintenance corrective action to that entry reported, "Checked rig per MM, taxi checked a-ok. Cleared log item #65."


A review of the aircraft maintenance logbook discrepancies for the previous 6 months revealed no other entries for Air Transport Association (ATA) Codes 27 (Flight Controls) and 32 (Landing Gear).


The digital flight data recorder (DFDR) data was downloaded by the NTSB Vehicle Recorders Laboratory in Washington DC. A review of the data was consistent with the pilots' account of the landing sequence.

According to American Airlines engineering, Boeing and American Airlines personnel examined the airplane in Tulsa, Oklahoma. Per an engineering bill-of-work and Boeing recommendations, the NLG assembly was removed and replaced, and several components and systems were functionally checked per applicable workcards and maintenance manuals. No anomalies were noted during the checks that were contributory to the incident.

On June 6, 2005, taxi checks were accomplished by AA maintenance personnel, and no braking or steering discrepancies were noted. On June 7, 2005, a FCF was accomplished. The purpose of the FCF was to specifically check the function of the braking and steering systems under a variety of operating conditions. During the FCF, no braking or steering discrepancies were noted. Two additional FCF were accomplished with at least 13 landings. With no anomalies noted during the functional checks, the airplane was returned to service on June 11, 2005. For 30 days, AA operations engineering downloaded and analyzed the DFDR at every major maintenance base stop (every day or 2 days) to monitor any anomalies. No subsequent anomalies or discrepancies were noted.

The reason for the occurrence was not determined.

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: DEN05IA083			
		Occurrence Date: 05/28/2005			
		Occurrence Type: Incident			
Landing Facility/Approach Information					
Airport Name DENVER INTL	Airport ID: DEN	Airport Elevation 5431 Ft. MSL	Runway Used 35R	Runway Length 12000	Runway Width 150
Runway Surface Type: Concrete					
Runway Surface Condition: Dry					
Type Instrument Approach: Visual					
VFR Approach/Landing: Straight-in					
Aircraft Information					
Aircraft Manufacturer McDonnell Douglas		Model/Series DC-9-82		Serial Number 49182	
Airworthiness Certificate(s): Normal					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats:	Certified Max Gross Wt. 149500 LBS	Number of Engines: 2		
Engine Type: Turbo Fan	Engine Manufacturer: Pratt & Whitney	Model/Series: JT8D-219	Rated Power: 21700 LBS		
- Aircraft Inspection Information					
Type of Last Inspection Continuous Airworthiness	Date of Last Inspection 04/2005	Time Since Last Inspection Hours	Airframe Total Time Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? Yes	ELT Operated? No	ELT Aided in Locating Accident Site? No			
Owner/Operator Information					
Registered Aircraft Owner PLM Transportation Equipment Corp.		Street Address One Market Ste. 800			
		City San Francisco	State CA	Zip Code 94105	
Operator of Aircraft American Airlines, Inc.		Street Address 4333 Amon Carter Blvd.			
		City Fort Worth	State TX	Zip Code 75067	
Operator Does Business As: American Airlines			Operator Designator Code: AALA		
- 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: DEN051A083
	Occurrence Date: 05/28/2005
	Occurrence Type: Incident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 49
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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; Single-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): None

Type Rating/Endorsement for Accident/Incident Aircraft?	Current Biennial Flight Review?
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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										
Pilot In Command(PIC)										
Instructor										
Last 90 Days										
Last 30 Days										
Last 24 Hours										

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 Dallas	State TX	Airport Identifier DFW	Departure Time 1541	Time Zone CDT
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Destination Same as Accident/Incident Location	State	Airport Identifier DEN	
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Type of Clearance: IFR

Type of Airspace:

Weather Information

Source of Briefing:

Method of Briefing:

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: DEN05IA083
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Weather Information

WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
DEN	1625	MDT	5431 Ft. MSL	NM	Deg. Mag.

Sky/Lowest Cloud Condition: Few	8000 Ft. AGL	Condition of Light: Day
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Lowest Ceiling: None	Ft. AGL	Visibility: 10	SM	Altimeter: 29.89	"Hg
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Temperature: 26 °C	Dew Point: -5 °C	Wind Direction: 260	Density Altitude: Ft.
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Wind Speed: 7	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: No Obscuration; No Precipitation

Type of Precipitation:

Accident Information

Aircraft Damage: Minor	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				109	109
- TOTAL ABOARD -				114	114
Other Ground					
- GRAND TOTAL -				114	114

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: DEN05IA083

Occurrence Date: 05/28/2005

Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

Aaron M. Sauer

Additional Persons Participating in This Accident/Incident Investigation:

James E Mack
Federal Aviation Administration
Denver, CO