
Buffet damage, McDonnell-Douglas DC10-30F, April 9, 1997

Micro-summary: This McDonnell-Douglas DC10-30F apparently experienced a stall buffet or high speed buffet, causing minor structural damage.


Event Date: 1997-04-09 at 0016 CDT


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: MIA97LA125		Aircraft Registration Number: N310FE	
		Occurrence Date: 04/09/1997		Most Critical Injury: None	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place MEMPHIS		State TN	Zip Code 38132	Local Time 0016	Time Zone CDT
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer McDonnell Douglas		Model/Series DC10-30F		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 April 9, 1997, about 0016 central daylight time, a McDonnell-Douglas DC10-30F, N310FE, registered to Wilmington Trust Company Trustee, and operated by Federal Express Corporation as Flight 52, a Title 14 CFR Part 121 scheduled domestic cargo flight from San Juan, Puerto Rico, to Memphis, Tennessee, was found to have damage to both elevators on arrival in Memphis. Visual meteorological conditions prevailed for departure from San Juan, and during arrival at Memphis. The aircraft sustained substantial damage and the airline transport-rated pilot, first officer, flight engineer, and three jump seat passengers were not injured. The flight originated from San Juan, on April 8, 1997, about 2121 Atlantic standard time.</p> <p>The flightcrew stated that the flight from San Juan, to Memphis, was uneventful and that they did not encounter any significant turbulence or any other events that would have stressed the aircraft enough to cause the damage to the elevators. On arrival in Memphis they were notified by ground maintenance personnel that both elevators had damage.</p> <p>Readout of the digital flight data recorder (DFDR) from N310FE was conducted by the NTSB Flight Data Recorder Laboratory, Washington, D.C. and Federal Express Corporation, Memphis, Tennessee. All 25 hours of data contained in the DFDR was read by NTSB. The data did not contain any events that could be identified as causing the elevator damage. (See NTSB Memorandum).</p> <p>Examination of the damaged elevators was conducted under the supervision of an FAA Inspector at the Materials and Process Engineering Laboratory, Boeing Commercial Airplane Company, Douglas Products Division, Long Beach, California. Each elevator had wrinkles in the upper and lower skins at the outboard ends. The as-received elevators and outboard hinges were examined for prior cracking, corrosion, and foreign object damage which might have contributed to failure initiation. Nothing significant was found. The lower left hand balance weight skin and the lower left hand outboard elevator skin exhibited more wrinkling than the right hand elevator. A small crack was found in a rib in the left elevator outboard area. The crack had features typical of overload. (See Boeing Report).</p> <p>Boeing personnel reported that several occurrences of damage to elevators on DC-10 aircraft had been reported by operators and in each case it was determined the aircraft had entered into stall buffet or overspeed buffet. Additionally, during flight testing of the DC-10, damage to elevators was found after stall maneuvers. The damage found on the elevators of N310FE was similar to the damage found in the above cases. (See Boeing Letters).</p> <p>The aircraft was released by NTSB on April 11, 1997, to John L. Fraley, Senior Flight Safety Analyst, Federal Express Corporation, Memphis, Tennessee. Components retained by NTSB for further examination were released to Federal Express Corporation.</p>					
FACTUAL REPORT - AVIATION					
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 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: MIA97LA125				
		Occurrence Date: 04/09/1997				
		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:						
VFR Approach/Landing:						
Aircraft Information						
Aircraft Manufacturer McDonnell Douglas		Model/Series DC10-30F		Serial Number 48299		
Airworthiness Certificate(s): Transport						
Landing Gear Type: Retractable - Tricycle						
Homebuilt Aircraft? No		Number of Seats: 8	Certified Max Gross Wt. 580000 LBS		Number of Engines: 3	
Engine Type: Turbo Fan		Engine Manufacturer: GE		Model/Series: CF6-50C2	Rated Power: 52500 LBS	
- Aircraft Inspection Information						
Type of Last Inspection AAIP		Date of Last Inspection 04/1997	Time Since Last Inspection 4 Hours		Airframe Total Time 27390 Hours	
- Emergency Locator Transmitter (ELT) Information						
ELT Installed? No		ELT Operated?		ELT Aided in Locating Accident Site?		
Owner/Operator Information						
Registered Aircraft Owner WILMINGTON TRUST COMPANY		Street Address RODNEY SQUARE NORTH				
		City WILMINGTON		State DE	Zip Code 19890	
Operator of Aircraft FEDERAL EXPRESS CORPORATION		Street Address 2005 CORPORATE AVENUE				
		City MEMPHIS		State TN	Zip Code 38132	
Operator Does Business As: FEDEX			Operator Designator Code: FDEA			
- Type of U.S. Certificate(s) Held:						
Air Carrier Operating Certificate(s): Cargo						
Operating Certificate:			Operator Certificate:			
Regulation Flight Conducted Under: Part 121: Air Carrier						
Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo						
FACTUAL REPORT - AVIATION						

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: MIA97LA125
	Occurrence Date: 04/09/1997
	Occurrence Type: Accident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 54
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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): None

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--w/ waivers/lim.	Date of Last Medical Exam: 10/1996
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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	6148	3335								
Pilot In Command(PIC)	6081	3298								
Instructor										
Last 90 Days		164								
Last 30 Days		71								
Last 24 Hours		52								

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 JUAN	State PR	Airport Identifier SJU	Departure Time 2121	Time Zone AST
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Destination Same as Accident/Incident Location	State	Airport Identifier MEM	
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Type of Clearance: IFR

Type of Airspace: Class D

Weather Information

Source of Briefing: Company

Method of Briefing:

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: MIA97LA125
	Occurrence Date: 04/09/1997
	Occurrence Type: Accident

Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
MEM	2351	CDT	332 Ft. MSL	1 NM	270 Deg. Mag.
Sky/Lowest Cloud Condition: Unknown			0 Ft. AGL	Condition of Light: Night/Dark	
Lowest Ceiling: Overcast		6000 Ft. AGL		Visibility: 10 SM	Altimeter: 30.00 "Hg
Temperature: 11 °C	Dew Point: 8 °C	Wind Direction: 50		Density Altitude: 0 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: Substantial	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					
Other Crew					
Passengers				3	3
- TOTAL ABOARD -				6	6
Other Ground	0	0	0		0
- GRAND TOTAL -	0	0	0	6	6

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: MIA97LA125

Occurrence Date: 04/09/1997

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

JEFFREY L. KENNEDY

Additional Persons Participating in This Accident/Incident Investigation:

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MEMPHIS, TN 38116

JOHN L FRALEY
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