
Elevator failure, Douglas DC-8-71, March 11, 1997

Micro-summary: Flight control failure on this Douglas DC-8-71 resulted in a rejected takeoff.


Event Date: 1997-03-11 at 1910 PST


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: SEA971A071		Aircraft Registration Number: N830BX	
		Occurrence Date: 03/11/1997		Most Critical Injury: None	
		Occurrence Type: Incident		Investigated By: NTSB	
Location/Time					
Nearest City/Place PORTLAND		State OR	Zip Code 97224	Local Time 1910	Time Zone PST
Airport Proximity: On Airport		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer McDonnell Douglas		Model/Series DC-8-71F		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 March 11, 1997, approximately 1910 Pacific standard time, the pilot of a DC-8-71, N830BX, aborted a takeoff at Portland International Airport because the elevator was not correctly responding to his inputs. The airline transport rated captain, his first officer, and the flight engineer were not injured, and the aircraft was not damaged. The 14 CFR Part 121 cargo flight, which was being operated by Air Transport International, was in the process of departing for Toledo Express Airport, Toledo, Ohio. The flight, which was on an IFR flight plan, was departing in visual meteorological conditions.</p> <p>According to the pilot, when he pushed the yoke forward for the 80 knot elevator check required by the company, the aircraft pitch angle did not change, and the yoke felt as if it was binding. He then applied a small amount of back-pressure on the yoke, expecting that the nose of the aircraft would rise slightly. Since the pitch attitude did not appear to change, and because the yoke still felt as if it were binding, the pilot elected to abort the takeoff. The aircraft was then taxied to a maintenance hangar in order for the elevator system to be inspected.</p> <p>Further investigation revealed that just prior to this flight, maintenance personnel had replaced the right elevator because a hole had been detected in its top skin. During the replacement process, washers were put under the head of four bolts that attach the inboard portion of the elevator drive torque tube to the outboard portion of the tube, an application where no washers are called for. According to the operator, "With the washers installed under the bolt heads, clearance between the bolt heads and the elevator structure was reduced to a point where under a flight load, an interference condition existed."</p> <p>According to the individuals who replaced the elevator, they used the washers for the new installation because when the bolts were removed from the old elevator torque tube attach fitting there were washers under the heads. They said that they assumed that the old installation had been correct, and simply copied what had been done in the past. After the incident, they checked the Illustrated Parts Catalog (IPC), and discovered that no washers were called for in this installation. In addition, maintenance personnel checked the installation of the bolts on the left elevator and found that those bolts had been installed correctly (no washers under the bolt heads).</p>					
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		NTSB ID: SEA97IA071			
		Occurrence Date: 03/11/1997			
		Occurrence Type: Incident			
Landing Facility/Approach Information					
Airport Name PORTLAND INTERNATIONAL	Airport ID: PDX	Airport Elevation 27 Ft. MSL	Runway Used 10R	Runway Length 11000	Runway Width 150
Runway Surface Type: Concrete					
Runway Surface Condition: Wet					
Type Instrument Approach:					
VFR Approach/Landing:					
Aircraft Information					
Aircraft Manufacturer McDonnell Douglas		Model/Series DC-8-71F		Serial Number 45973	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 7	Certified Max Gross Wt. 320000 LBS	Number of Engines: 4		
Engine Type: Turbo Fan	Engine Manufacturer: Cfm	Model/Series: 56-2C	Rated Power: 22000 LBS		
- Aircraft Inspection Information					
Type of Last Inspection Continuous Airworthiness	Date of Last Inspection 03/1997	Time Since Last Inspection 0 Hours	Airframe Total Time 65486 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner AEROUSA, INC.		Street Address 80 WOOSTER HGTS RD C/O GPA GP.			
		City DANBURY	State CT	Zip Code 06810	
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: AIR TRANSPORT INTERNATIONAL			Operator Designator Code: IXXA		
- 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: Non-scheduled; Domestic; Cargo					
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 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: SEA971A071
	Occurrence Date: 03/11/1997
	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: Civilian Pilot	Certificate Number: On File
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Certificate(s): Airline Transport; Flight Instructor; Flight Engineer

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

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

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

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	19738									
Pilot In Command(PIC)	18538									
Instructor										
Last 90 Days	209									
Last 30 Days	90									
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

Departure Point Same as Accident/Incident Location	State	Airport Identifier PDX	Departure Time 1910	Time Zone PST
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Destination TOLEDO	State OH	Airport Identifier TOL	
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Type of Clearance: IFR

Type of Airspace: Class D

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
0000			0 Ft. MSL	0 NM	0 Deg. Mag.

Sky/Lowest Cloud Condition: **Unknown** 0 Ft. AGL Condition of Light: **Not Reported**

Lowest Ceiling: **Overcast** 6500 Ft. AGL Visibility: 10 SM Altimeter: "Hg

Temperature: °C Dew Point: °C Wind Direction: 200 Density Altitude: Ft.

Wind Speed: 10 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				1	1
Cabin Attendants					
Other Crew					
Passengers					
- TOTAL ABOARD -				3	3
Other Ground	0	0	0		0
- GRAND TOTAL -	0	0	0	3	3

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: SEA97IA071

Occurrence Date: 03/11/1997

Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

ORRIN K. ANDERSON

Additional Persons Participating in This Accident/Incident Investigation:

DIANE FROHN
PORTLAND FSDO