
Tailstrike, Boeing 757-232, October 4, 1993

Micro-summary: This Boeing 757-232 encountered a tailstrike while taking off.


Event Date: 1993-10-04 at 1720 EDT

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

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

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		NTSB ID: ATL94IA001		Aircraft Registration Number: N638DL		
		Occurrence Date: 10/04/1993		Most Critical Injury: None		
		Occurrence Type: Incident		Investigated By: NTSB		
Location/Time						
Nearest City/Place FORT LAUDERDALE		State FL	Zip Code 33310	Local Time 1720	Time Zone EDT	
Airport Proximity: On Airport		Distance From Landing Facility:		Direction From Airport:		
Aircraft Information Summary						
Aircraft Manufacturer BOEING		Model/Series 757-232		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 October 4, 1993, at 1720 eastern daylight time, a Delta Air Lines Boeing 757-232, Flight 594, N638DL, collided with the runway during an attempted takeoff from International Airport, Fort Lauderdale, Florida. The scheduled, domestic, passenger flight operated under 14 CFR Part 121 with an instrument flight clearance. Visual weather conditions prevailed at the time of the incident. The airplane sustained minor damage, and none of the 95 occupants was injured. The flight departed Fort Lauderdale, at 1720 hours.</p> <p>According to the pilots, during the takeoff roll, "the aircraft bounced forward and aft" (rearward), and as the airspeed approached 128 knots, the nose pitched up. At this point the pilot stated that he applied full power and continued the climb (see attached airworthiness release). Seconds later, a flight attendant seated in the rear of the airplane reported that she thought that the tail of the airplane struck the runway (see attached NTSB Form 6120.1/2 with crew statements). The flight returned to Fort Lauderdale and landed without further incident.</p> <p>Examination of the airplane revealed a six-foot long scrape mark on the bottom of the fuselage near the aft pressure bulkhead. Further examination revealed a buckle in the lower panel of the pressure bulkhead assembly. Examination of the aircraft flight control systems failed to disclose a mechanical malfunction or component failure.</p> <p>The aircraft digital flight data recorder (DFDR) was removed for data readout and evaluation. The recovered data disclosed that,</p> <p>at 0039:30 elapsed time, at an indicated airspeed of 95 knots, elevator deflection began to change from a negative to a positive value. Three seconds later, at an indicated airspeed of 108.5 knots, pitch attitudes began to increase as well. At 0039:37 elapsed time, elevator deflection angles attained maximum values, and one second later, at an indicated airspeed of 126 knots, pitch angle reached a maximum value of +11.25 degrees nose up while the air/ground parameter changed to the "air" state. Pitch angle values then decreased concurrently with elevator deflection angle value. At 0039:41 elapsed time, the air/ground parameter changed back to the "ground" state. At 0039:42 elapsed time, at an indicated airspeed of 140 knots, the air/ground parameter changed to "air" and remained in that state for the remainder of the flight.</p> <p>Data from the previous take-off was also examined. The data revealed that elevator deflection began to move from negative to positive values at an indicated airspeed of 136.5 knots.</p> <p>Additional review of the DFDR data revealed no N1 engine speed changes until after the aircraft had established a positive rate of climb. Further review of the DFDR data did not disclose a pitch angle in excess of +10.0 degrees on the previous flight until the aircraft was well into the</p>						
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National Transportation Safety Board

FACTUAL REPORT

AVIATION

SAFETY BOARD

NTSB ID: ATL94IA001


Occurrence Date: 10/04/1993


Occurrence Type: Incident

Narrative (Continued)

positive rate of climb; a corresponding reduction in engine N1 speed was also noted at that time. The previous flight liftoff occurred at 151 knots and at 6.855 degrees of nose up pitch.

A review of the final weight and balance data revealed the following computed takeoff airspeeds for Flight 594: V1-128, VR-130 and V2-135 (see attached V speed definitions).

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: ATL94IA001			
		Occurrence Date: 10/04/1993			
		Occurrence Type: Incident			
Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
FORT LAUDERDALE	FLL	11 Ft. MSL	27R	9001	150
Runway Surface Type:					
Runway Surface Condition:					
Type Instrument Approach:					
VFR Approach/Landing:					
Aircraft Information					
Aircraft Manufacturer		Model/Series		Serial Number	
BOEING		757-232		23761	
Airworthiness Certificate(s):					
Landing Gear Type: Retractable -					
Homebuilt Aircraft? No	Number of Seats: 190	Certified Max Gross Wt.	223800 LBS	Number of Engines: 2	
Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:		
Turbo Fan	P&W	2037	37530 LBS		
- Aircraft Inspection Information					
Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time		
Continuous Airworthiness	10/1993	9 Hours	18266 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? No	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner		Street Address			
DELTA AIR LINES		1010 DELTA BOULEVARD			
		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):					
Operating 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: ATL94IA001
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First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 53
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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; Commercial

Airplane Rating(s): Multi-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): Airplane Single-engine; 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: 08/1993
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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		1881								
Pilot In Command(PIC)										
Instructor										
Last 90 Days	227	227								
Last 30 Days										
Last 24 Hours	12	12								

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 FLL	Departure Time 1720	Time Zone EST
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Destination BOSTON	State MA	Airport Identifier BOS	
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Type of Clearance:

Type of Airspace:

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
FLL	1720	EST	11 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			2000 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: Broken		7000 Ft. AGL		Visibility: 10 SM	Altimeter: 29.00 "Hg
Temperature: 27 °C	Dew Point: 23 °C	Wind Direction: 10		Density Altitude: 1050 Ft.	
Wind Speed: 3	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					
Cabin Attendants				6	6
Other Crew					
Passengers				87	87
- TOTAL ABOARD -				95	95
Other Ground	0	0	0		0
- GRAND TOTAL -	0	0	0	95	95

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: ATL94IA001

Occurrence Date: 10/04/1993

Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

PHILLIP POWELL ,

Additional Persons Participating in This Accident/Incident Investigation:

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COLLEGE PARK, GA 30349