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## Tailstrike on landing, Boeing 757-24APF, December 25, 1994

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**Micro-summary:** This Boeing 757 experienced a tail strike on landing.

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**Event Date:** 1994-11-25 at 0549 CST


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


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


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### Cautions:


1. Accident reports can be and sometimes are revised. Be sure to consult the investigative agency for the latest version before basing anything significant on content (e.g., thesis, research, etc).
  2. Readers are advised that each report is a glimpse of events at specific points in time. While broad themes permeate the causal events leading up to crashes, and we can learn from those, the specific regulatory and technological environments can and do change. ***Your company's flight operations manual is the final authority as to the safe operation of your aircraft!***
  3. Reports may or may not represent reality. Many many non-scientific factors go into an investigation, including the magnitude of the event, the experience of the investigator, the political climate, relationship with the regulatory authority, technological and recovery capabilities, etc. It is recommended that the reader review all reports analytically. Even a "bad" report can be a very useful launching point for learning.
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		NTSB ID: FTW95LA055		Aircraft Registration Number: N413UP	
		Occurrence Date: 11/25/1994		Most Critical Injury: None	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place TULSA	State OK	Zip Code 74115	Local Time 0549	Time Zone CST	
Airport Proximity: On Airport		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer BOEING		Model/Series 757-24APF		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 November 25, 1994, at 0549 central standard time, a Boeing 757-24APF, N413UP, was substantially damaged during landing at the Tulsa International Airport, in Tulsa, Oklahoma. The airplane, owned and operated by United Parcel Service, Inc., (UPS) as flight 732 and flown by two airline transport rated pilots, was on a 14 CFR Part 121 cargo flight. An IFR flight plan was in effect and visual meteorological conditions prevailed. Neither of the two crewmembers, the sole occupants, were injured.</p> <p>During interviews conducted by the operator's flight standards division, the captain admitted to performing non-standard approaches previously, and he liked to "experiment with dynamic braking;" however, "he was not deliberately trying aerodynamic braking on this landing." Other crew members who had flown with the captain stated that "he often experimented and that he had a tendency toward non-compliance with standard operating procedures outlined in the UPS manuals."</p> <p>The aircraft was equipped with a Fairchild model F1000 digital flight data recorder. The recorder was removed from the aircraft by the company and transported to Louisville, Kentucky, for read out and analysis. The recorder provided the following information: the approach was stable down to 50 feet, the approach speed was 130 knots (Vref +4), the airspeed was decreased to 118 knots (Vref minus 8 knots), the aircraft floated down the runway for approximately 8 seconds. The recorder also indicated that pitch attitude was increasing as the airspeed dissipated. The pitch attitude at touchdown was 7.3 degrees and reached 10.9 degrees in the next 5 seconds. A review of the UPS manuals determined that the approach did not comply with the published procedures for this aircraft.</p> <p>Boeing Aircraft Company data, published to the users, states that the tail strike will occur at approximately 10.5 degrees pitch up attitude with gear struts compressed.</p> <p>According to the operator, the airplane experienced a tail strike during landing which caused substantial structural damage. An inspection revealed damage to the belly skin, stringers, drain mast, and aft bulkhead.</p>					
FACTUAL REPORT - AVIATION					

 <b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b>		NTSB ID: FTW95LA055			
		Occurrence Date: 11/25/1994			
		Occurrence Type: Accident			
<b>Landing Facility/Approach Information</b>					
Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
TULSA INTERNATIONAL	TUL	677 Ft. MSL	18L	10000	200
Runway Surface Type: Concrete					
Runway Surface Condition: Dry					
Type Instrument Approach: Visual					
VFR Approach/Landing: Full Stop					
<b>Aircraft Information</b>					
Aircraft Manufacturer	Model/Series		Serial Number		
BOEING	757-24APF		23853		
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 6	Certified Max Gross Wt.	250000 LBS	Number of Engines: 2	
Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:		
Turbo Fan	P&W	2040	40000 LBS		
<b>- Aircraft Inspection Information</b>					
Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time		
Continuous Airworthiness	11/1994	3 Hours	8830 Hours		
<b>- Emergency Locator Transmitter (ELT) Information</b>					
ELT Installed? No	ELT Operated?	ELT Aided in Locating Accident Site?			
<b>Owner/Operator Information</b>					
Registered Aircraft Owner	Street Address				
UNITED PARCEL SERVICE INC	1400 NORTH HURSTBOURNE PKWY				
	City	State	Zip Code		
	LOUISVILLE	KY	40223		
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: IPXA		
<b>- Type of U.S. Certificate(s) Held:</b>					
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					
FACTUAL REPORT - AVIATION					

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		Occurrence Type: Accident																																																																																		
<b>First Pilot Information</b>																																																																																				
Name		City		State	Date of Birth	Age																																																																														
On File		On File		On File	On File	48																																																																														
Sex: M	Seat Occupied: Left	Principal Profession: Civilian Pilot			Certificate Number: On File																																																																															
Certificate(s): Airline Transport; Flight Instructor																																																																																				
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?																																																																																
Medical Cert.: Class 1		Medical Cert. Status: Valid Medical--w/ waivers/lim.			Date of Last Medical Exam: 11/1994																																																																															
<table border="1"> <tr> <th rowspan="2">- Flight Time Matrix</th> <th rowspan="2">All A/C</th> <th rowspan="2">This Make and Model</th> <th rowspan="2">Airplane Single Engine</th> <th rowspan="2">Airplane Multi-Engine</th> <th rowspan="2">Night</th> <th colspan="2">Instrument</th> <th rowspan="2">Rotorcraft</th> <th rowspan="2">Glider</th> <th rowspan="2">Lighter Than Air</th> </tr> <tr> <th>Actual</th> <th>Simulated</th> </tr> <tr> <td>Total Time</td> <td>9000</td> <td>1500</td> <td>1500</td> <td>7500</td> <td>4500</td> <td>900</td> <td>100</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command(PIC)</td> <td>6000</td> <td>1500</td> <td>900</td> <td>5900</td> <td>3000</td> <td>800</td> <td>50</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td>1000</td> <td></td> <td>900</td> <td>100</td> <td>100</td> <td>100</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td>200</td> <td>200</td> <td></td> <td>200</td> <td>170</td> <td>20</td> <td>4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td>70</td> <td>70</td> <td></td> <td>70</td> <td>60</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td>3</td> <td>3</td> <td></td> <td>3</td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						- 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	9000	1500	1500	7500	4500	900	100				Pilot In Command(PIC)	6000	1500	900	5900	3000	800	50				Instructor	1000		900	100	100	100					Last 90 Days	200	200		200	170	20	4				Last 30 Days	70	70		70	60						Last 24 Hours	3	3		3	3					
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Last 24 Hours	3	3		3	3																																																																															
Seatbelt Used? Yes		Shoulder Harness Used? Yes		Toxicology Performed?		Second Pilot? Yes																																																																														
<b>Flight Plan/Itinerary</b>																																																																																				
Type of Flight Plan Filed: IFR																																																																																				
Departure Point		State	Airport Identifier	Departure Time	Time Zone																																																																															
LOUISVILLE		KY	SDF	0510	CST																																																																															
Destination		State	Airport Identifier																																																																																	
Same as Accident/Incident Location																																																																																				
Type of Clearance: IFR																																																																																				
Type of Airspace: Class E																																																																																				
<b>Weather Information</b>																																																																																				
Source of Briefing: Company																																																																																				
Method of Briefing:																																																																																				

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		Occurrence Date: 11/25/1994			
		Occurrence Type: Accident			
<b>Weather Information</b>					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
TUL	0554	CST	659 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Unknown				0 Ft. AGL	Condition of Light: Night/Dark
Lowest Ceiling: Overcast			3900 Ft. AGL	Visibility: 10 SM	Altimeter: 30.00 "Hg
Temperature: 9 °C		Dew Point: 6 °C	Wind Direction: 200		Density Altitude: Ft.
Wind Speed: 5		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					
<b>Accident Information</b>					
Aircraft Damage: Substantial		Aircraft Fire: None		Aircraft Explosion: None	
Classification: Unknown					
- 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					
Other Crew					
Passengers					
- TOTAL ABOARD -				2	2
Other Ground	0	0	0		0
- GRAND TOTAL -	0	0	0	2	2
<div style="display: flex; justify-content: space-between;"> <span>FACTUAL REPORT - AVIATION</span> <span>Page 4</span> </div>					

 National Transportation Safety Board <b>FACTUAL REPORT</b> AVIATION	NTSB ID: FTW95LA055	
	Occurrence Date: 11/25/1994	
	Occurrence Type: Accident	
Administrative Information		
Investigator-In-Charge (IIC) MATTHEW ELLIS,		
Additional Persons Participating in This Accident/Incident Investigation:  LLOYD R COOK FAA FSDO OKLAHOMA CITY, OK 73108		
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