
Wing damage in cruise, Boeing 747-2R7F, April 19, 1997

Micro-summary: The separation of a trailing edge panel on this Boeing 747 caused damage to the flaps and a subsequent diversion.


Event Date: 1997-04-19 at 1953 EDT

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

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

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		NTSB ID: MIA97IA147		Aircraft Registration Number: N639FE	
		Occurrence Date: 04/19/1997		Most Critical Injury: None	
		Occurrence Type: Incident		Investigated By: NTSB	
Location/Time					
Nearest City/Place MIAMI	State FL	Zip Code 33166	Local Time 1953	Time Zone EDT	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Boeing		Model/Series 747-2R7F		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 19, 1997, about 1953 eastern daylight time, a Boeing 747-2R7F, N639FE, registered to Wilmington Trust Company Trustee, operated by Atlas Air Inc., as a 14 CFR Part 121 scheduled domestic/international cargo flight, experienced an in-flight failure of the right inboard trailing edge wing skin panel in cruise flight. The pilot-in-command diverted back to his departure airport and landed without further incident. Visual meteorological conditions prevailed, and an IFR flight plan was filed. The airline transport pilot-in-command (PIC), first officer and flight engineer reported no injuries. The flight originated from Miami International Airport, Miami, Florida about 33 minutes before the incident. The destination airport was Bogota, Columbia.</p> <p>The PIC stated he was level at flight level 290 when a pronounced airframe vibration started. At the same time the No. 2 engine thrust reverser armed light illuminated. No other lights illuminated. The abnormal procedures check was initiated, the No. 2 throttle was moved to the idle position, and airspeed was reduced to 290 knots. As the airspeed decreased the buffet/vibration decreased. The vibration stopped after airspeed reached 270 knots. A landing was accomplished with the No. 2 engine in the idle position. Examination of the airplane after landing revealed the right inboard trailing edge wing skin panel had delaminated and was missing.</p> <p>According to Atlas Air Manager, Maintenance, South America Area and Miami, N639FE was acquired from Federal Express (FedEx) on April 12, 1997. The airplane was scheduled to have a "c" check on March 4, 1997, at Mobile Aerospace Facility, Mobile, Alabama. Review of a routine card No. 760003 provided by FedEx to Atlas Air on May 1, 1997, revealed that a "THROUGH VISUAL INSPECTION OF UPPER WING FROM AND INCLUDING FUSELAGE FILLET TO W8L 515 FROM CENTERLINE OF L/E TO EXTREME TE INCLUDING #7 #8 SPOILERS RH & I/8 AILERON FOR CLEANLINESS, CONDITION AND DELAMINATION" was conducted on December 29, 1996, in accordance with Boeing Service Bulletin No. 747-57-2261.</p> <p>Review of N639FE logbooks revealed the No. 2 engine throttle reverser arm light illuminated in-flight after level off on April 18, 1997. The light went off when the throttles were pulled back to idle. Examination revealed a faulty reverser arm switch, and the item was carried as deferred in the logbook. On landing at Miami on the day of the incident, all four thrust reversers operated normally on landing.</p> <p>Examination of the airplane by Atlas Air maintenance personnel after the incident revealed the right hand wing fixed trailing edge panel had failed. About 1/3 of the panel had departed the airplane colliding with the right hand inboard fore flap and the inboard mid flap. The total time on the airframe is 63,503 hours with 14,697 cycles. The airplane has been operated by Atlas Air for 21 hours and 5 cycles.</p> <p>Review of Boeing Service Bulletin No. 747-57-2261 indicates that 40 operators sent Boeing 239 service reports on surface cracks, dents, disbonding or water-contamination in the area of the titanium doubler and at the aft end of those panels. In 95 of these service reports, the operators</p>					
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National Transportation Safety Board

FACTUAL REPORT

AVIATION




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Narrative (Continued)

informed Boeing that pieces of the upper panel departed the airplanes in flight. At the time of these service reports, the airplanes had flight hours between 1,110 and 80,920 and flight cycles between 342 and 19,460.

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: MIA97IA147			
		Occurrence Date: 04/19/1997			
		Occurrence Type: Incident			
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: NONE					
VFR Approach/Landing: Precautionary Landing					
Aircraft Information					
Aircraft Manufacturer Boeing		Model/Series 747-2R7F		Serial Number 21650	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 3	Certified Max Gross Wt.	301848 LBS	Number of Engines: 4	
Engine Type: Turbo Fan	Engine Manufacturer: P&W	Model/Series: JT9D-70A	Rated Power: 52000 LBS		
- Aircraft Inspection Information					
Type of Last Inspection AAIP	Date of Last Inspection 04/1997	Time Since Last Inspection 21 Hours	Airframe Total Time 63503 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? Yes	ELT Operated? No	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner WILMINGTON TRUST CO TRUSTEE		Street Address RODNEY SQ NO ATTN: CORP TR ADM			
		City WILMINGTON	State DE	Zip Code 19890	
Operator of Aircraft ATLAS AIR		Street Address BLDG 151 JFK INT AIRPORT			
		City JAMAICA	State NY	Zip Code 11430	
Operator Does Business As:			Operator Designator Code: UIEA		
- 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; International; Cargo					
FACTUAL REPORT - AVIATION					

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: MIA97IA147
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First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 50
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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; 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: 11/1996
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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	7530	1429	12	7518	1665	1072	795			
Pilot In Command(PIC)	5427	1258	12	5415	1420	863	532			
Instructor										
Last 90 Days	152	152		152	65	51	4			
Last 30 Days	74	74		74	31	24				
Last 24 Hours	3	3		3	3	1				

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 MIA	Departure Time 1923	Time Zone EDT
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Destination BOGOTA	State OF	Airport Identifier BLG	
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Type of Clearance: IFR

Type of Airspace: Class A

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
MIA	1956	EDT	11 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			3000 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: None		0 Ft. AGL	Visibility: 10 SM	Altimeter: 29.00	"Hg
Temperature: 26 °C	Dew Point: 6 °C	Wind Direction:		Density Altitude: 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				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



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Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

CARROL A. SMITH

Additional Persons Participating in This Accident/Incident Investigation:

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