



# Aviation Investigation Final Report

<b>Location:</b>	HOWARD BEACH, New York	<b>Incident Number:</b>	NYC96IA169
<b>Date &amp; Time:</b>	August 15, 1996, 23:25 Local	<b>Registration:</b>	N24343
<b>Aircraft:</b>	Boeing 727-232	<b>Aircraft Damage:</b>	Minor
<b>Defining Event:</b>		<b>Injuries:</b>	112 None
<b>Flight Conducted Under:</b>	Part 121: Air carrier - Scheduled		

## Analysis

The Boeing 727-231 was on final approach with the landing gear down and locked and the flaps at 15 degrees. When the flaps were extended to 30 degrees, the airplane started to roll right. Controllability was assessed and found to be satisfactory for continuation of the approach and landing. Postlanding examination of the airplane revealed the inboard section of the fore flap on the right wing had separated from the airplane. The separated flap section was located in a street of Howard Beach, NY about 2.5 miles from the approach end of runway 13L. Metallurgical examination of the respective attachment fitting revealed a fatigue crack that had originated from grinding marks on the fitting. The source of the grinding marks, (original manufacturer or rebuilder) was not determined. During maintenance, the fitting is inspected visually during a 'C' check (at 1690 hour intervals), which had last occurred 1030 hours before the occurrence.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: fatigue failure of the fore flap attachment fitting, due to grinding marks on the fitting.

## Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: APPROACH - FAF/OUTER MARKER TO THRESHOLD (IFR)

Findings

1. (C) FLIGHT CONTROL, LEADING EDGE FLAP ATTACHMENT - FATIGUE
2. (C) MAINTENANCE, REBUILD/REMANUFACTURE - IMPROPER - UNKNOWN

## Factual Information

On August 15, 1996, about 2325 eastern daylight time, TWA flight 782, N24343, Boeing 727-231, had a separation of flap section during approach to John F. Kennedy Airport, Jamaica, New York. Visual meteorological conditions prevailed and an instrument flight rules plan was filed. There were no injuries to the 112 occupants. The airplane received minor damage. The departure point was Orlando, Florida. The flight was conducted under 14 CFR Part 121.

Flight 782 conducted the VOR approach to runway 13L, and according to the captain, when landing flaps (30 degrees) were selected, the airplane rolled to the right. The roll was corrected with aileron input, and airplane control was regained. In addition, there were no abnormal cockpit indications, and the reference speed was increased 15 knots for safety. The approach continued to a normal landing.

Post flight examination of the airplane revealed a portion of the right wing outboard trailing edge flap had separated. An eight foot long section remained attached to the airplane. The separated flap section was located in a street of Howard Beach, New York, about 2.5 miles from the approach end of runway 13L. The section was about 16 inches wide and 9 feet long. There was no property damage associated with the separation.

Metallurgical examination of the failed fitting in the NTSB Laboratory found a fatigue crack that emanated from gouge marks. The gouge marks were found on multiple locations on the fitting. In addition, the metallurgical report stated that the maximum roughness allowed was 125 microinches (0.000125 inches), and the gouge marks measured as deep as 0.002 inches. The source of the gouges, original manufacturer, or rebuild was not determined.

The fittings P/N 69-26255, are inspected at "C" checks. The last "C" check was conducted on April 4, 1996, at the TWA maintenance base located at John F. Kennedy Airport 1030 hours prior to the occurrence. The interval between "C" checks was 1690 hours. According to the work card, the inspection is a visual inspection conducted without removal of the fitting.

## Pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	55, Male
<b>Airplane Rating(s):</b>	Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>		<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	March 6, 1996
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	16873 hours (Total, all aircraft), 5380 hours (Total, this make and model), 4189 hours (Pilot In Command, all aircraft), 264 hours (Last 90 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Boeing	<b>Registration:</b>	N24343
<b>Model/Series:</b>	727-232 727-232	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	21630
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	156
<b>Date/Type of Last Inspection:</b>	February 2, 1997 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	172000 lbs
<b>Time Since Last Inspection:</b>	321 Hrs	<b>Engines:</b>	3 Turbo fan
<b>Airframe Total Time:</b>	45145 Hrs	<b>Engine Manufacturer:</b>	P&W
<b>ELT:</b>		<b>Engine Model/Series:</b>	JT8D-9
<b>Registered Owner:</b>	TRANS WORLD AIRLINES	<b>Rated Power:</b>	14500 Lbs thrust
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	Flag carrier (121)
<b>Operator Does Business As:</b>	TWA	<b>Operator Designator Code:</b>	TWAA

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Night/bright
<b>Observation Facility, Elevation:</b>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	0°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>		<b>Temperature/Dew Point:</b>	
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	ORLANDO , FL (MCO)	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	JAMAICA , NY (JFK)	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	00:00 Local	<b>Type of Airspace:</b>	Class B

## Airport Information

<b>Airport:</b>		<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>		<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	VOR
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	7 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>	105 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	112 None	<b>Latitude, Longitude:</b>	40.660758,-73.840118(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hancock, Robert
<b>Additional Participating Persons:</b>	STEVEN SHATAKA; GARDEN CITY , NY RICHARD ANDERSON; SEATTLE , WA FRANK ZAKAR; WASHINGTON , DC
<b>Original Publish Date:</b>	July 13, 1998
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=39105">https://data.nts.gov/Docket?ProjectID=39105</a>

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