



# Aviation Investigation Final Report

<b>Location:</b>	PORTLAND, Oregon	<b>Incident Number:</b>	SEA88IA065
<b>Date &amp; Time:</b>	March 20, 1988, 16:04 Local	<b>Registration:</b>	N515DA
<b>Aircraft:</b>	BOEING 727-232	<b>Aircraft Damage:</b>	Minor
<b>Defining Event:</b>		<b>Injuries:</b>	78 None
<b>Flight Conducted Under:</b>	Part 121: Air carrier - Scheduled		

## Analysis

CREW WAS UNABLE TO LOWER THE LEFT MAIN LNDG GEAR. CREW THEN EXECUTED AN EMERGENCY LANDING ON THE RIGHT MAIN AND NOSE GEAR WITH MINOR DAMAGE TO THE ACFT. THE INVESTIGATION REVEALED THAT THE LEFT MAIN GEAR DOOR ATTACH FITTING HAD A FATIGUE FRACTURE.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be:

### Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: DESCENT - NORMAL

#### Findings

1. (C) DOOR, LANDING GEAR - FATIGUE
2. (C) LANDING GEAR, NORMAL RETRACTION/EXTENSION ASSEMBLY - DISABLED

Occurrence #2: GEAR NOT EXTENDED  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

#### Findings

3. GEAR EXTENSION - NOT POSSIBLE
4. WHEELS UP LANDING - PERFORMED

## Factual Information

### Pilot Information

<b>Certificate:</b>	Airline transport; Commercial	<b>Age:</b>	49, Male
<b>Airplane Rating(s):</b>	Single-engine land; 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>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical--w/ waivers/lim	<b>Last FAA Medical Exam:</b>	December 18, 1987
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	13000 hours (Total, all aircraft), 5000 hours (Total, this make and model), 400 hours (Last 90 days, all aircraft), 200 hours (Last 30 days, all aircraft), 10 hours (Last 24 hours, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	BOEING	<b>Registration:</b>	N515DA
<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>	21431
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	148
<b>Date/Type of Last Inspection:</b>	March 8, 1988 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	185000 lbs
<b>Time Since Last Inspection:</b>	101 Hrs	<b>Engines:</b>	3 Turbo fan
<b>Airframe Total Time:</b>	29397 Hrs	<b>Engine Manufacturer:</b>	P&W
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	JT8D-15A
<b>Registered Owner:</b>	WILMINGTON TRUST CO.	<b>Rated Power:</b>	17000 Lbs thrust
<b>Operator:</b>	DELTA AIR LINES, INC.	<b>Operating Certificate(s) Held:</b>	Flag carrier (121)
<b>Operator Does Business As:</b>	DELTA AIR LINES	<b>Operator Designator Code:</b>	DALA

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	PDX ,26 ft msl	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	16:08 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Scattered / 4500 ft AGL	<b>Visibility</b>	30 miles
<b>Lowest Ceiling:</b>	Broken / 6500 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	10 knots / 17 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	230°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	14°C / 4°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	SALT LAKE CITY , UT (SLC )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	PORTLAND , OR (PDX )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	13:55 Local	<b>Type of Airspace:</b>	Class E;TRSA

## Airport Information

<b>Airport:</b>	PORTLAND INTL PDX	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	26 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	20	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	7000 ft / 150 ft	<b>VFR Approach/Landing:</b>	Full stop

## Wreckage and Impact Information

<b>Crew Injuries:</b>	14 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>	64 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	78 None	<b>Latitude, Longitude:</b>	45.570098,-122.590087(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Daily, H
<b>Additional Participating Persons:</b>	LESTER BRIGGS; HILLSBORO , OR
<b>Original Publish Date:</b>	January 25, 1990
<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=40741">https://data.nts.gov/Docket?ProjectID=40741</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).