



# Aviation Investigation Final Report

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<b>Location:</b>	SEATTLE, Washington	<b>Incident Number:</b>	SEA88IA108
<b>Date &amp; Time:</b>	June 12, 1988, 22:17 Local	<b>Registration:</b>	N308AS
<b>Aircraft:</b>	BOEING 727-200	<b>Aircraft Damage:</b>	Minor
<b>Defining Event:</b>		<b>Injuries:</b>	7 Minor, 81 None
<b>Flight Conducted Under:</b>	Part 121: Air carrier - Scheduled		

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## Analysis

AFTER THE MAIN GEAR TOUCHED DOWN, THRUST LEVERS WERE PLACED IN THE IDLE REVERSE POSITION. ONCE THE AIRCRAFT'S NOSE GEAR CONTACTED THE RUNWAY, BRAKING AND FULL REVERSE THRUST WAS APPLIED. THE AIRCRAFT STARTED TO DRIFT TO THE LEFT OF THE RUNWAY CENTERLINE. THE PILOT APPLIED ASYMMETRICAL BRAKING WITH NO CHANGE IN DIRECTIONAL CONTROL. THE PILOT THEN COMBINED THE USE OF ASYMMETRICAL BRAKING WITH ASYMMETRICAL REVERSE THRUST. AS A FINAL EFFORT TO PREVENT THE AIRCRAFT FROM DEPARTING THE RUNWAY, THE CAPTAIN USED THE TILLER. THE AIRCRAFT CAME TO REST ON A GRASSY AREA BETWEEN THE PARALLEL RUNWAYS. THE AIRCRAFT IS EQUIPPED WITH 'LIGHTWEIGHT' CLAMSHELL THRUST REVERSERS. THE RIGHT HAND THRUST REVERSER ON THE NUMBER 2 ENGINE WAS FOUND FAILED IN THE OPEN (FORWARD THRUST) POSITION. THRUST REVERSER LIGHTS DID NOT INDICATE ANY ABNORMALITIES. AN OVERSTRESS FRACTURE OF THE LOWER INNER HINGE WITH A FATIGUE FRACTURE THROUGH THE FLANGE OF THE UPPER OUTER HINGE WAS FOUND BY METALLURGICAL EXAMINATION.

## Probable Cause and Findings

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

## Findings

Occurrence #1: LOSS OF CONTROL - ON GROUND/WATER

Phase of Operation: LANDING - ROLL

### Findings

1. (C) THRUST REVERSER, DOOR - FATIGUE
2. (C) THRUST REVERSER, DOOR - FAILURE, PARTIAL
3. (C) THRUST REVERSER - ASYMMETRICAL
4. (F) DIRECTIONAL CONTROL - NOT MAINTAINED - PILOT IN COMMAND
5. (F) REMEDIAL ACTION - IMPROPER - PILOT IN COMMAND
6. (F) INADEQUATE TRAINING (EMERGENCY PROCEDURE(S)) - COMPANY/OPERATOR MANAGEMENT
7. (F) INFORMATION UNCLEAR - MANUFACTURER

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Occurrence #2: ON GROUND/WATER COLLISION WITH OBJECT

Phase of Operation: LANDING - ROLL

### Findings

8. OBJECT - RUNWAY LIGHT

## Factual Information

### Pilot Information

<b>Certificate:</b>	Airline transport; Commercial; Flight engineer	<b>Age:</b>	40, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<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--no waivers/lim.	<b>Last FAA Medical Exam:</b>	June 2, 1988
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	9240 hours (Total, all aircraft), 7803 hours (Total, this make and model), 123 hours (Last 90 days, all aircraft), 53 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	BOEING	<b>Registration:</b>	N308AS
<b>Model/Series:</b>	727-200 727-200	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	227
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	134
<b>Date/Type of Last Inspection:</b>	May 31, 1988 100 hour	<b>Certified Max Gross Wt.:</b>	190000 lbs
<b>Time Since Last Inspection:</b>	98 Hrs	<b>Engines:</b>	3 Turbo fan
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	P&W
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	JT8D-17R
<b>Registered Owner:</b>	UNITED STATES TRUST CO. OF NY	<b>Rated Power:</b>	16400 Horsepower
<b>Operator:</b>	ALASKA AIRLINES, INC.	<b>Operating Certificate(s) Held:</b>	Flag carrier (121)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	AS

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Night/dark
<b>Observation Facility, Elevation:</b>	SEA ,429 ft msl	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	22:35 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	20 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	11 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	30°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	15°C / 9°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	PORTLAND , OR (PDX )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	SEATTLE , WA (SEA )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	21:45 Local	<b>Type of Airspace:</b>	Class D

## Airport Information

<b>Airport:</b>	SEATTLE-TACOMA INT'L. SEA	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	429 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	34R	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	11900 ft / 150 ft	<b>VFR Approach/Landing:</b>	Full stop

## Wreckage and Impact Information

<b>Crew Injuries:</b>	6 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>	7 Minor, 75 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	7 Minor, 81 None	<b>Latitude, Longitude:</b>	47.300323,-122.310119(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Carrera, Candace
<b>Additional Participating Persons:</b>	R K MCGUIRE; SEATTLE , WA C./E MUTH/DUTCHNOWSKI; SEATTLE , WA RALPH PETERSON; SEATTLE , WA J W PURVIS; SEATTLE , WA
<b>Original Publish Date:</b>	June 7, 1989
<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=40743">https://data.nts.gov/Docket?ProjectID=40743</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](#).