



# Aviation Investigation Final Report

<b>Location:</b>	ST. PAUL, Minnesota	<b>Incident Number:</b>	CHI911A078
<b>Date &amp; Time:</b>	January 20, 1991, 20:45 Local	<b>Registration:</b>	N295US
<b>Aircraft:</b>	BOEING 727-251	<b>Aircraft Damage:</b>	Minor
<b>Defining Event:</b>		<b>Injuries:</b>	44 None
<b>Flight Conducted Under:</b>	Part 121: Air carrier - Scheduled		

## Analysis

THE FLIGHT CREW WAS INFORMED BY THE TOWER OF A FIRE ON THE RIGHT SIDE OF THE AIRPLANE WHILE TAXIING FOR TAKEOFF. THE FIRE PRECEDED BY UTILIZING THE AUXILARY POWER UNIT (APU) FOR A MAIN ENGINE START. THE MAIN ENGINE START WAS ABORTED WHEN THE APU FAILED TO DELIVER SUFFICIENT BLEED AIR PRESSURE. A POST INCIDENT INSPECTION OF THE APU DISCLOSED A LIBERATED TURBINE EXDUCER BLADE WHICH CAUSED AN IMBALANCE OF THE TURBINE WHEEL, ALLOWING SMOPKE AND FLAMES TO ESCAPE FROM THE APU EXHAUST ATOP THE RIGHT WING ROOT. THERE HAS BEEN 7 SERVICE DIFFICULTY REPORTS AND 4 ACCIDENTS/INCIDENTS ASSOCIATED WITH EXDUCER FAILURES IN THIS MODEL APU IN THE LAST FIVE YEARS.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: THE PARTIAL FAILURE OF THE AIRPLANE'S AUXILIARY POWER UNIT, AND THE INADEQUATE COMPONENT PRODUCED BY THE MANUFACTURER.

## Findings

Occurrence #1: FIRE  
Phase of Operation: TAXI - TO TAKEOFF

Findings

1. AUXILIARY POWER UNIT - FIRE

## Factual Information

### Pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	37, Male
<b>Airplane Rating(s):</b>	Multi-engine land	<b>Seat Occupied:</b>	Unknown
<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>	November 2, 1990
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	750 hours (Total, all aircraft), 750 hours (Total, this make and model)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	BOEING	<b>Registration:</b>	N295US
<b>Model/Series:</b>	727-251 727-251	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>		<b>Serial Number:</b>	21506
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	153
<b>Date/Type of Last Inspection:</b>	January 2, 2000 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	172000 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	3 Turbo fan
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	P&W
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	JT8D-15
<b>Registered Owner:</b>	FIRST SECURITY BANK OF UTAH	<b>Rated Power:</b>	15000 Lbs thrust
<b>Operator:</b>	NORTHWEST AIRLINES, INC.	<b>Operating Certificate(s) Held:</b>	Flag carrier (121)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	NW

## 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>	MSP ,841 ft msl	<b>Distance from Accident Site:</b>	1 Nautical Miles
<b>Observation Time:</b>	20:50 Local	<b>Direction from Accident Site:</b>	45°
<b>Lowest Cloud Condition:</b>	Scattered / 4300 ft AGL	<b>Visibility</b>	12 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	12 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	340°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>		<b>Temperature/Dew Point:</b>	-13°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>		<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	PHILADELPHIA , PA (PHL )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	20:45 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	MINEAPOLIS ST. PAUL MSP	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	841 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	6 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>	38 None	<b>Aircraft Fire:</b>	On-ground
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	44 None	<b>Latitude, Longitude:</b>	44.879962,-93.199829(est)

## Administrative Information

**Investigator In Charge (IIC):** Labelle, James

**Additional Participating Persons:** R. E DAHLKE;  
RED SMITH;

**Original Publish Date:** September 28, 1992

**Last Revision Date:**

**Investigation Class:** [Class](#)

**Note:**

**Investigation Docket:** <https://data.nts.gov/Docket?ProjectID=14927>

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](#).