



# National Transportation Safety Board Aviation Incident Data Summary

<b>Location:</b>	Boise, ID	<b>Incident Number:</b>	SEA02IA044
<b>Date &amp; Time:</b>	03/01/2002, 1840 MST	<b>Registration:</b>	N410QX
<b>Aircraft:</b>	Bombardier DHC-8-401	<b>Injuries:</b>	73 None
<b>Flight Conducted Under:</b>	Part 121: Air Carrier - Scheduled		

## Analysis

During en route cruise, there was a failure of a number two system elevator hydraulic line. This resulted in a loss of hydraulic fluid and loss of pressurization in the number two system. The loss of this system resulted in the rudder being dependent upon the sole remaining activation system (hydraulic system number one) for its operation. After the landing gear was lowered manually, the aircraft landed without further incident, but because the loss of the number two system rendered the nose wheel steering inoperative, the aircraft had to be towed from the runway. The reason for the failure of the hydraulic line could not be positively determined.

## Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this incident to be: The partial failure of one of the number two hydraulic system elevator hydraulic lines, leading to the loss of fluid and pressure in that system during cruise flight. This loss resulted in reliance upon the sole remaining activation system (number one hydraulic) to operate the rudder.

## Findings

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

### Findings

1. (C) HYDRAULIC SYSTEM,LINE - FAILURE,PARTIAL
2. (C) FLUID,HYDRAULIC - STARVATION
3. (C) HYDRAULIC SYSTEM - INOPERATIVE

## Pilot Information

<b>Certificate:</b>	Airline Transport	<b>Age:</b>	49
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Instrument Rating(s):</b>	Airplane
<b>Other Aircraft Rating(s):</b>	Glider	<b>Instructor Rating(s):</b>	None
<b>Flight Time:</b>	16000 hours (Total, all aircraft), 50 hours (Total, this make and model)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Bombardier	<b>Registration:</b>	N410QX
<b>Model/Series:</b>	DHC-8-401	<b>Engines:</b>	2 Turbo Prop
<b>Operator:</b>	Horizon Airlines	<b>Engine Manufacturer:</b>	P&W
<b>Operating Certificate(s) Held:</b>	Flag carrier (121)	<b>Engine Model/Series:</b>	PW150A
<b>Flight Conducted Under:</b>	Part 121: Air Carrier - Scheduled		

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual Conditions	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>		<b>Weather Information Source:</b>	Pilot
<b>Lowest Ceiling:</b>	None	<b>Wind Speed/Gusts, Direction:</b>	Light and Variable / , Variable
<b>Temperature:</b>	11 °C	<b>Visibility</b>	10 Miles
<b>Precipitation and Obscuration:</b>			
<b>Departure Point:</b>	Seattle, WA (SEA)	<b>Destination:</b>	Boise, ID (BOI)

## Wreckage and Impact Information

<b>Crew Injuries:</b>	4 None	<b>Aircraft Damage:</b>	None
<b>Passenger Injuries:</b>	69 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Latitude, Longitude:</b>			

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Orrin K Anderson	<b>Adopted Date:</b>	06/03/2002
<b>Investigation Docket:</b>	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

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