National Transportation Safety Board
Aviation Incident Data Summary

Location:	CASPER, WY	**Incident Number:**	DEN87IA145A
Date & Time:	06/02/1987, 1012 MDT	**Registration:**	N297US
Aircraft:	BOEING 727-251	**Injuries:**	60 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

BOEING 727 (NORTHWEST FLT 354) & USAF EC-135 (SLUM 51) WERE INVOLVED IN A NR COLLISION AT FL 330. THE MISHAP OCCURRED ASFLT 354 WAS ENE BND ON J-158 & SLUM 51 WAS FLYING ON A RADIAL-DISTANCE (R/D) FLT PLN, FLYING BTN R/D PTS SOUTH OF J-158.AS SLUM 51 APCHD ITS MOST WESTERN PT, THE CREW REQD A RGT TURN TO A R/D PT THAT WAS NOT THE NEXT LISTED PT ON THEIR FLT PLN. THE TRAINEE CTLR (T/C) DIDN'T REALIZE SLUM 51 WAS REQG A ROUTE CHG, BUT THOUGHT THE FLT WANTED TO TURN BACK EAST TOTHE NEXT FILED R/D PT WITH A RGT TURN (INSTEAD OF A L TURN AS PREVIOUSLY DONE). THE T/C REPLIED, 'UNABLE RGT TURN, MAKE A LEFT TURN.' THE INSTRUCTOR HEARD THE REQ, BUT THOUGHT THE T/C'S REPLY WAS DISAPPROVAL OF A ROUTE CHG. AS THE CTLRS TURNED THEIR ATTN TO OTR (HVY/COMPLEX) TRAFFIC, SLUM 51 CONTD A 270 DEG L TURN (TO NORTH) & CONVERGED WITH FLT 354. THE 9020 (PRIMARY) COMPUTER WAS INOP; THE DARC (BACKUP) COMPUTER HAD NO CAPABILITY OF DISPLAYING PROJECTED ROUTES OR PROVID-ING CONFLICT ALERT. NO FLOW CTL RESTRICTIONS WERE IN EFFECT TO RDC THE AMOUNT OF TRAFFIC.

Probable Cause

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

Findings

Occurrence #1: NEAR COLLISION BETWEEN AIRCRAFT
Phase of Operation: CRUISE - NORMAL

Findings
1. (F) RADAR,EN ROUTE - FAILURE,PARTIAL
2. ARTCC SERVICE
3. (F) EXCESSIVE WORKLOAD (TASK OVERLOAD) - ATC PERSONNEL(ARTCC)
4. (F) IMPROPER DECISION - FAA(OTHER/ORGANIZATION)
5. (C) RADIO COMMUNICATIONS - NOT UNDERSTOOD - ATC PERSONNEL(ARTCC)
6. (C) ATC CLEARANCE - INACCURATE - ATC PERSONNEL(ARTCC)
7. COMMUNICATIONS/INFORMATION/ATC - NOT UNDERSTOOD - PILOT OF OTHER AIRCRAFT
8. (F) RADAR,CONFLICT ALERT - INOPERATIVE
9. (C) IFR SEPARATION STANDARDS - NOT MAINTAINED

Pilot Information

Certificate:	Airline Transport	**Age:**	44
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Instrument Rating(s):**	Airplane
Other Aircraft Rating(s):	None	**Instructor Rating(s):**	None
Flight Time:	12230 hours (Total, all aircraft), 10000 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	BOEING	**Registration:**	N297US
Model/Series:	727-251 727-251	**Engines:**	3 Turbo Fan
Operator:	NORTHWEST AIRLINES, INC.	**Engine Manufacturer:**	P&W
Operating Certificate(s) Held:	Flag carrier (121)	**Engine Model/Series:**	JT8D
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	, 0 ft msl	**Weather Information Source:**	Pilot
Lowest Ceiling:	None / 0 ft agl	**Wind Speed/Gusts, Direction:**	/ ,
Temperature:		**Visibility**	0 Miles
Precipitation and Obscuration:			
Departure Point:	SAN FRANCISCO, CA (SFO)	**Destination:**	MINNEAPOLIS, MN (MSP)

Wreckage and Impact Information

Crew Injuries:	6 None	**Aircraft Damage:**	None
Passenger Injuries:	54 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Latitude, Longitude:			

Administrative Information

Investigator In Charge (IIC):	ROBERT D JOHNSON	**Adopted Date:**	10/17/1988
Investigation Docket:	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 pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/.		

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