



National Transportation Safety Board Aviation Incident Data Summary

Location:	ST. LOUIS, MO	Incident Number:	CHI93IA352
Date & Time:	09/02/1993, 1203 CDT	Registration:	N918TW
Aircraft:	MCDONNELL DOUGLAS DC-9-82	Injuries:	108 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

AS THE CAPTAIN WAS TURNING THE AIRPLANE OFF THE RUNWAY FOLLOWING ITS LANDING ROLL HE SAID IT WAS '...EXTREMELY DIFFICULT TO TURN.' THE CAPTAIN SAID THE AIRPLANE TURNED TO A 45 DEGREE ANGLE TO THE RUNWAY AND WOULD GO NO FURTHER. THE STEERING SYSTEM FAILED AND THE CAPTAIN ATTEMPTED TO STOP THE AIRPLANE ON THE TAXIWAY USING BRAKES AND REVERSE THRUST. THE AIRPLANE WOULD NOT STOP AND ROLLED OFF ONTO THE GRASS AREA ADJACENT TO THE TAXIWAY. EXAMINATION OF THE BRAKE SYSTEM FOUND THE HYDRAULIC SYSTEM POWER TRANSFER UNIT'S (PTU) HOUSING WAS CRACKED AROUND ITS ENTIRE CIRCUMFERENCE. THE PTU ON THE INCIDENT AIRPLANE WAS AN EARLY STYLE UNIT ACCORDING TO THE MANUFACTURER'S SERVICE BULLETIN. THE SERVICE BULLETIN ADVISED OWNERS OF THE AIRPLANE TO REPLACE THE ORIGINAL ALUMINUM HOUSING WITH A CAST IRON TYPE. EXAMINATION OF THE PTU'S HOUSING FRACTURE SURFACES REVEALED SHRINKAGE CAVITIES, AND LARGE SILICON INCLUSIONS.

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this incident to be: a fatigue failure of the power transfer unit caused by a material defect which resulted in a total hydraulic system failure.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: TAXI - FROM LANDING

Findings

1. (C) HYDRAULIC SYSTEM - FAILURE, TOTAL
2. (C) HYDRAULIC SYSTEM - FATIGUE
3. REMEDIAL ACTION - ATTEMPTED - PILOT IN COMMAND
4. (C) MATERIAL DEFECT - MANUFACTURER
5. LANDING GEAR, NORMAL BRAKE SYSTEM - FAILURE, TOTAL
6. LANDING GEAR, STEERING SYSTEM - FAILURE, TOTAL

Occurrence #2: MISCELLANEOUS/OTHER
Phase of Operation: TAXI - FROM LANDING

Pilot Information

Certificate:	Airline Transport	Age:	
Airplane Rating(s):	Multi-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):		Instructor Rating(s):	None
Flight Time:	11992 hours (Total, all aircraft), 3878 hours (Total, this make and model), 137 hours (Last 90 days, all aircraft), 37 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	MCDONNELL DOUGLAS	Registration:	N918TW
Model/Series:	DC-9-82 DC-9-82	Engines:	2 Turbo Jet
Operator:	TWA, INC.	Engine Manufacturer:	GE
Operating Certificate(s) Held:	Flag carrier (121)	Engine Model/Series:	JT8D-209
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Not Reported
Observation Facility, Elevation:	STL, 605 ft msl	Weather Information Source:	Weather Observation Facility
Lowest Ceiling:	Broken / 4000 ft agl	Wind Speed/Gusts, Direction:	6 knots / , 210°
Temperature:	29° C	Visibility	8 Miles
Precipitation and Obscuration:			
Departure Point:	NEW YORK, NY (LGA)	Destination:	, MO (STL)

Airport Information

Airport:	LAMBERT-ST. LOUIS INT'L (STL)	Runway Surface Type:	Concrete
Runway Used:	30R	Runway Surface Condition:	Dry
Runway Length/Width:	11019 ft / 200 ft		

Wreckage and Impact Information

Crew Injuries:	5 None	Aircraft Damage:	None
Passenger Injuries:	103 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Latitude, Longitude:			

Administrative Information

Investigator In Charge (IIC): FRANK S GATTOLIN Adopted Date: 09/13/1994

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.nts.gov/pubdms/>.

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report.