



National Transportation Safety Board Aviation Accident Data Summary

Location:	NASHVILLE, TN	Accident Number:	ATL96FA043
Date & Time:	02/01/1996, 1505 CST	Registration:	N903VJ
Aircraft:	DOUGLAS DC-9-32	Injuries:	80 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

During landing, the right main landing gear shock strut cylinder and piston failed which caused the axle, wheels, and tires to separate. Metallurgical examination showed that the fracture surfaces had been damaged after separation. Two areas on the cylinder fracture face were not at an angle to suggest overstress separation, and ratchet marks were present which usually separate initiation sites on offset fracture planes. The piston fracture surfaces had features typical of overstress separation. The right main landing torque links had failed during landing 312 flight hours before this accident. The torque links, shimmy damper, and piston were replaced at that time; the cylinder was not replaced.

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the failure of the right main landing gear shock strut cylinder due to preexisting fractures. Contributing to the accident was: the failure of the operator to inspect the shock strut cylinder for fractures following a previous failure of the torque links, and the absence of specific directives and procedures from the aircraft manufacturer to inspect or replace the shock strut cylinder following torque link failure.

Findings

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

Findings

1. LANDING GEAR,MAIN GEAR STRUT SCISSORS - FAILURE,TOTAL
2. LANDING GEAR,MAIN GEAR SHOCK ABSORBING STRUT - FRACTURED
3. (C) MAINTENANCE,INSPECTION - INADEQUATE - COMPANY MAINTENANCE PERSONNEL
4. (C) PROCEDURE INADEQUATE - MANUFACTURER
5. (C) LANDING GEAR,MAIN GEAR SHOCK ABSORBING STRUT - FAILURE,TOTAL

Pilot Information

Certificate:	Airline Transport; Flight Engineer	Age:	39
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	None	Instructor Rating(s):	None
Flight Time:	6000 hours (Total, all aircraft), 1500 hours (Total, this make and model), 2500 hours (Pilot In Command, all aircraft), 258 hours (Last 90 days, all aircraft), 79 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	DOUGLAS	Registration:	N903VJ
Model/Series:	DC-9-32 DC9-32	Engines:	2 Turbo Fan
Operator:	VALUJET INC.	Engine Manufacturer:	P&W
Operating Certificate(s) Held:	Flag carrier (121)	Engine Model/Series:	JT8D-7B
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:	BNA, 599 ft msl	Weather Information Source:	Weather Observation Facility
Lowest Ceiling:	Overcast / 3700 ft agl	Wind Speed/Gusts, Direction:	10 knots / , 360°
Temperature:	-2° C	Visibility	15 Miles
Precipitation and Obscuration:			
Departure Point:	ATLANTA, GA (ATL)	Destination:	, TN (BNA)

Airport Information

Airport:	NASHVILLE INTERNATIONAL (BNA)	Runway Surface Type:	Asphalt
Runway Used:	31	Runway Surface Condition:	Dry
Runway Length/Width:	11029 ft / 150 ft		

Wreckage and Impact Information

Crew Injuries:	5 None	Aircraft Damage:	Substantial
Passenger Injuries:	75 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Latitude, Longitude:			

Administrative Information

Investigator In Charge (IIC): ROFF H SASSER Adopted Date: 05/02/1997

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.