



National Transportation Safety Board Aviation Incident Data Summary

Location:	Covington, KY	Incident Number:	NYC011A072
Date & Time:	01/03/2001, 0832 EST	Registration:	N933CA
Aircraft:	Bombardier CL-600-2B19	Injuries:	46 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

During climbout, an airframe vibration developed. All gauges, readouts, synoptic pages, and airplane controls were normal. The crew contacted their maintenance base and attempted to troubleshoot the problem, but could not determine its cause. The vibration remained unchanged until the airplane leveled off at 7,000 feet during an approach. At that time, the crew felt a bump, then the vibration completely ceased. The airplane landed, and taxied to the gate without further incident. Post-flight inspection revealed that the number 1 exhaust fairing was missing, and that the left, aft fuselage had a dent. The 30 bolts that would have normally attached the exhaust nozzle assembly to the exhaust frame were all missing, "without a trace." Seven months earlier, the tailpipe was found loose. Ten bolts were replaced, and the rest were re-torqued. The last inspection on the airplane had been completed about 2 weeks earlier, 105 hours prior to the incident. Company personnel had previously found cracked bolts on exhaust flanges from other engines. Laboratory examination of used bolts from another engine revealed no anomalies. Engine shop buildup and shop exit manuals were subsequently revised to make the installation and torquing of exhaust nozzle bolts a required inspection item.

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this incident to be: Missing exhaust nozzle bolts for undetermined reasons. A factor was inadequate maintenance inspection of the affected area.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: APPROACH

Findings

1. EXHAUST SYSTEM, EXHAUST CONE/TAILPIPE (JET ENGINE) - SEPARATION
2. (F) MAINTENANCE, INSPECTION - INADEQUATE - COMPANY MAINTENANCE PERSONNEL
3. (C) MISCELLANEOUS, BOLT/NUT/FASTENER/CLAMP/SPRING - MISSING

Pilot Information

Certificate:	Airline Transport	Age:	34
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	None	Instructor Rating(s):	None

Flight Time:

Co-Pilot Information

Certificate:	Commercial	Age:	32
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	None	Instructor Rating(s):	None

Flight Time:

Aircraft and Owner/Operator Information

Aircraft Make:	Bombardier	Registration:	N933CA
Model/Series:	CL-600-2B19	Engines:	2 Turbo Fan
Operator:	COMAIR INC	Engine Manufacturer:	GE
Operating Certificate(s) Held:	Flag carrier (121)	Engine Model/Series:	CF34-3A1
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:	CVG, 897 ft msl	Weather Information Source:	Weather Observation Facility
Lowest Ceiling:	None	Wind Speed/Gusts, Direction:	6 knots / , 210°
Temperature:	-13°C	Visibility	6 Miles
Precipitation and Obscuration:			
Departure Point:	Minneapolis, MN (MSP)	Destination:	Covington, KY (CVG)

Wreckage and Impact Information

Crew Injuries:	3 None	Aircraft Damage:	Minor
Passenger Injuries:	43 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None

Latitude, Longitude:

Administrative Information

Investigator In Charge (IIC): Paul R Cox

Adopted Date: 01/02/2002

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/>.

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