



National Transportation Safety Board Aviation Accident Final Report

Location:	COVINGTON, KY	Accident Number:	NYC99LA064
Date & Time:	02/22/1999, 1455 EST	Registration:	N682DA
Aircraft:	Boeing 757	Aircraft Damage:	Substantial
Defining Event:		Injuries:	132 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

The airplane pushed back from the gate, and taxied to runway 18L. While taxiing, the crew heard no mention of a bird hazard by another aircraft or air traffic control. The takeoff roll was normal until passing approximately 150 knots; at that point, a flock of birds traveling from left to right passed in front of the airplane. The captain advised the first officer of the hazard, and asked him to climb over the flock. The first officer increased pitch angle, but the airplane still penetrated the flock. At the time of penetration, the nose wheel was in the air, and the main landing gear was just becoming airborne. The airplane returned to the airport without further incident. At the time of impact, N1 on the left engine dropped from 81.88 percent to 56.00 percent, and on the right engine, it dropped from 81.25 to 71.63 percent. In both cases, throttle positions remained constant. The bird's roost was not identified, and no airport procedures contributing to the accident were observed. Starlings comprised 5 percent of all the damaging animal strikes to U.S. aircraft from 1993 to 1995.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A flock birds were ingested into both engines, resulting in substantial damage to the engines.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: TAKEOFF - ROLL/RUN

Findings

1. (C) OBJECT - BIRD(S)

Factual Information

On February 22, 1999, about 1455 eastern standard time, a Boeing 757, N682DA, operated by Delta Air Lines as flight 338, penetrated a flock of birds during takeoff from Cincinnati/Northern Kentucky International Airport, Covington, Kentucky. The airplane was substantially damaged. The 2 flight crewmembers, 5 flight attendants, and 125 passengers were not injured. Visual meteorological conditions prevailed, and an instrument flight rules flight plan had been filed for the scheduled passenger flight destined for Washington, District of Columbia. The flight was conducted under 14 CFR Part 121.

According to the captain, they pushed back from the gate, and taxied to runway 18L. While taxiing, he heard no mention of a bird hazard by another aircraft or ATC. After reaching the runway, the captain initiated the takeoff with the first officer at the controls. The takeoff roll was normal until passing approximately 150 knots; at that point, a flock of birds traveling from left to right passed in front of the airplane. The captain advised the first officer of the hazard and asked him to attempt to climb over the flock. The first officer increased pitch angle, but the airplane still penetrated the flock. At the time of penetration, the nose wheel was in the air and the main landing gear was just becoming airborne. The captain advised ATC of the event, and was cleared to land.

After advising ATC, the flight crew performed left traffic for runway 18L, landed, and taxied to the gate without further incident. The captain observed no change in engine performance or flight characteristics during or after the event. He added that the birds were small and brown, with white spots.

A review of the flight data record revealed that approximately 1 second after the airplane's main landing gear transitioned from ground to flight, the N1 on the left engine dropped from 81.88 percent to 56.00 percent, and the right engine dropped from 81.25 to 71.63 percent. In both cases, throttle positions remained constant. In addition, pitch was 19.16 degrees nose up, and airspeed was 152.5 knots at the time of the event.

Examination of both engines by the operator, revealed damage to the first stage of the compressor sections on the number 1, and number 2 engines. The sections were changed, and the aircraft was returned to service.

On February 23 and 24, 1999, a Federal Aviation Administration Wildlife Biologist examined the airport operations area (AOA). In his report, he wrote, "The starlings [*Sturnus vulgaris*] involved in the strike appear to have been a random foraging flock. Careful inspection of the area where the starlings were just prior to the strike did not reveal any anomalies or anything remarkably different from virtually every other grassed area within the AOA."

He continued, "It is difficult to say with any degree of certainty whether or not the starlings involved in the strike had been roosting in the terminal area trees. In that part of the country, starlings will form large winter roost wherever they can find suitable habitat conditions. Some winter roost can contain several million birds. Winter roosting starlings will fly up to 50 miles (one-way) daily to feed. The starlings involved in the strike could have come from the terminal roost area or they could have come from a roost many miles from the airport."

The FAA publication titled Hazardous Wildlife Attractants On Or Near Airports, states

that "All species of wildlife can pose a threat to aircraft safety." In addition, it stated that starlings comprised 5 percent of all damaging animal strikes to U.S. aircraft from 1993 to 1995.

Pilot Information

Certificate:	Airline Transport	Age:	55, Male
Airplane Rating(s):	Multi-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last Medical Exam:	09/08/1998
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	18000 hours (Total, all aircraft), 2771 hours (Total, this make and model), 156 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Boeing	Registration:	N682DA
Model/Series:	757 757	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	26958
Landing Gear Type:	Retractable - Tricycle	Seats:	191
Date/Type of Last Inspection:	Continuous Airworthiness	Certified Max Gross Wt.:	232000 lbs
Time Since Last Inspection:		Engines:	2 Turbo Fan
Airframe Total Time:		Engine Manufacturer:	P&W
ELT:	Installed, not activated	Engine Model/Series:	PW2037
Registered Owner:	DELTA AIR LINES	Rated Power:	37000 lbs
Operator:	DELTA AIR LINES	Air Carrier Operating Certificate:	Flag carrier (121)
Operator Does Business As:	DELTA AIR LINES	Operator Designator Code:	DALA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	CVG, 900 ft msl	Observation Time:	1954 EST
Distance from Accident Site:	0 Nautical Miles	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 25000 ft agl	Temperature/Dew Point:	-1° C / -14° C
Lowest Ceiling:	None / 0 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	4 knots, Variable	Visibility (RVR):	0 ft
Altimeter Setting:	30 inches Hg	Visibility (RVV):	0 Miles
Precipitation and Obscuration:			
Departure Point:	, KY (CVG)	Type of Flight Plan Filed:	IFR
Destination:	WASHINGTON, DC (DCA)	Type of Clearance:	IFR
Departure Time:	1455 EST	Type of Airspace:	Class C

Airport Information

Airport:	CINCINNATI INTERNATIONAL (CVG)	Runway Surface Type:	Asphalt
Airport Elevation:	897 ft	Runway Surface Condition:	Dry
Runway Used:	18L	IFR Approach:	
Runway Length/Width:	10000 ft / 150 ft	VFR Approach/Landing:	

Wreckage and Impact Information

Crew Injuries:	7 None	Aircraft Damage:	Substantial
Passenger Injuries:	125 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	132 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	DAVID S MUZIO	Adopted Date:	08/10/2000
Additional Participating Persons:	GERALD MILBURN; LOUISVILLE, KY ED CLEARLY; WASHINGTON, DC		
Publish Date:			
Investigation Docket:	NTSB accident and incident docket 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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