National Transportation Safety Board FACTUAL REPORT AVIATION	NTSB ID: DCA02MA026	Aircraft Registration Number: N622BR
	Occurrence Date: 03/09/2002	Most Critical Injury: None
	Occurrence Type: Accident	Investigated By: NTSB

Location/Time

Nearest City/Place	State	Zip Code	Local Time	Time Zone	
Dulles Airport	VA		1015		

Airport Proximity: On Airport/Airstrip	Distance From Landing Facility:

Aircraft Information Summary

Aircraft Manufacturer	Model/Series	Type of Aircraft
Canadair	CL-600-2B19	Airplane

Revenue Sightseeing Flight: No	Air Medical Transport Flight: No

Narrative

Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:

On March 9, 2002, about 1015 eastern standard time, a Bombardier CL-600-2B19, N622BR, operating as Atlantic Coast Airlines (ACA) flight 7682, struck two wild turkeys while initiating a takeoff from runway 30 at Washington Dulles International Airport (IAD). None of the 3 crewmembers or 50 passengers on board was injured. The airplane sustained damage to the number-two engine inlet, the first officer's windshield, and a 14- by 4-inch section of fuselage skin just below the windshield seal on the first officer's side. Flight 7682 was operating on an instrument flight rules flight plan under the provisions of 14 Code of Federal Regulations (CFR) Part 121 as a regularly scheduled passenger flight from IAD to LaGuardia International Airport, New York, New York. Visual meteorological conditions prevailed at the time of the accident.

The captain reported that the airplane was on departure roll and had accelerated past 80 knots when a flock of birds began to fly south over the runway. The airplane was traveling at approximately 110 knots when one of the birds hit the airplane, cracking the first officer's windshield and causing a few shards of glass to fall into the cockpit and onto the first officer. The captain immediately rejected the takeoff and stopped on the runway to assess the damage. The first officer notified air traffic control (ATC) of the rejected takeoff. The flight crew determined that the only damage appeared to be to the windshield, so the captain taxied clear of the runway. The flight crew then notified ATC, ACA operations, and ACA maintenance about the reason for the rejected takeoff and informed them that they were returning to the gate.

A postflight inspection by ACA maintenance personnel revealed that the airplane had struck two wild turkeys. One turkey hit the intake of the number-two engine, slightly damaging the forward lip of the engine intake cowl. No bird remains went through the engine. The other turkey hit just below the first officer's windshield, where a turkey leg and foot were still lodged. Closer examination of the airplane revealed that the second turkey hit the nose sheet metal at the base of the first officer's windshield, bending the windshield support structure and causing the windshield to crack upward from that location. The second turkey penetrated the area beneath the lower support structure, went through the pressure bulkhead, and entered the back of the instrument panel but did not penetrate either the windshield or its supporting structure.

Title 14 CFR 25.775(b) states,

Windshield panes directly in front of the pilots in the normal conduct of their duties, and the supporting structures for these panes, must withstand, without penetration, the impact of a four-pound bird when the velocity of the airplane (relative to the bird along the airplane's flight path) is equal to the value of Vc, at sea level. [Vc equals design cruising speed.]

Bombardier Aerospace Company, the manufacturer of the airplane, impact-tested the windshield for a 4-pound bird at 330 knots. The wild turkey that hit the accident airplane was estimated to have weighed roughly 15 pounds, and the impact velocity was approximately 110 knots. Using the kinetic

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energy equation to calculate the equivalent energy for this mass and speed, investigators determined that the windshield would have been able to withstand the impact of a bird more than twice as large as the turkey that hit the accident aircraft. In this accident, the wild turkey did not penetrate the windshield or its support structure but instead penetrated an area beneath the windshield support structure.

At the time of the accident, IAD had an annual wildlife management plan that included provisions for dispersing and removing wildlife from areas surrounding the aircraft operating area. The United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, assessed IAD wildlife hazards for the period from September 2000 to August 2001 [U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, Monitoring of Potential Wildlife Hazards at Washington Dulles International Airport: September 2000 through August 2001 (Moseley, Virginia)]. The assessment report indicated that, during that time, Wildlife Services took 719 control actions against 36 species, dispersing a total of 19,000 animals (including 3 wild turkeys) and killing a total of 799 animals. The assessment report concluded that birds and mammals continued to present a high risk to aviation safety at IAD and listed several recommendations to reduce the risk, which IAD has implemented. To help eliminate the wild turkey threat, IAD allows airport personnel to hunt wild turkeys within the airport perimeter during the Commonwealth of Virginia's two annual turkey hunting seasons.

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Landing Facility/Approach Information

Airport Name		Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
Dulles International Airport		IAD	313 Ft. MSL	30		

Runway Surface Type: Asphalt

Runway Surface Condition: Dry

Approach/Arrival Flown:

VFR Approach/Landing:

Aircraft Information

Aircraft Manufacturer	Model/Series	Serial Number
Canadair	CL-600-2B19	7187

Airworthiness Certificate(s): Transport

Landing Gear Type: Retractable - Tricycle

Amateur Built Acft? No	Number of Seats: 50	Certified Max Gross Wt.	51250 LBS	Number of Engines: 2

Engine Type: Turbo Fan	Engine Manufacturer: General Electric	Model/Series: CF34B	Rated Power: 9220 LBS

- Aircraft Inspection Information

Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time
Continuous Airworthiness	02/2002	203 Hours	12059 Hours

- Emergency Locator Transmitter (ELT) Information

ELT Installed?/Type Yes /	ELT Operated? No	ELT Aided in Locating Accident Site? No

Owner/Operator Information

Registered Aircraft Owner	Street Address 225 Asylum Street, Goodwin Square		
State Street Bank and Trust Co. of CT	City Hartford	State CT	Zip Code 06103

Operator of Aircraft	Street Address 45200 Business Court		
ATLANTIC COAST AIRLINES	City Dulles	State VA	Zip Code 20166

Operator Does Business As:	Operator Designator Code: VTZA

- Type of U.S. Certificate(s) Held:

Air Carrier Operating Certificate(s): Flag Carrier/Domestic

Operating Certificate:	Operator Certificate:

Regulation Flight Conducted Under: Part 121: Air Carrier

Type of Flight Operation Conducted: Scheduled; Domestic; Passenger Only

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First Pilot Information

Name		City	State	Date of Birth	Age
On File					

Sex: F	Seat Occupied: Left	Occupational Pilot?	Certificate Number:

Certificate(s):   Airline Transport; Commercial

Airplane Rating(s):   Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA:

Instrument Rating(s):

Instructor Rating(s):

Current Biennial Flight Review?

Medical Cert.:	Medical Cert. Status:	Date of Last Medical Exam:

- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Mult-Engine	Night	Instrument Actual	Instrument Simulated	Rotorcraft	Glider	Lighter Than Air
Total Time										
Pilot In Command(PIC)										
Instructor										
Instruction Received										
Last 90 Days										
Last 30 Days										
Last 24 Hours										

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed? No	Second Pilot? Yes

Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

Departure Point		State	Airport Identifier	Departure Time	Time Zone
Dulles Airport		VA	KIAD	0000	EST

Destination		State	Airport Identifier	
		NY	KLGA	

Type of Clearance: IFR

Type of Airspace:

Weather Information

Source of Wx Information:

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Weather Information

WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
			Ft. MSL	NM	Deg. Mag.

Sky/Lowest Cloud Condition: Clear	Ft. AGL	Condition of Light: Day

Lowest Ceiling:	Ft. AGL	Visibility: 9	SM	Altimeter: 30.37	"Hg

Temperature: 14 °C	Dew Point: 14 °C	Weather Conditions at Accident Site: Visual Conditions

Wind Direction:	Wind Speed: Calm	Wind Gusts:

Visibility (RVR): Ft.	Visibility (RVV) SM	

Precip and/or Obscuration:

Accident Information

Aircraft Damage: Substantial	Aircraft Fire: None	Aircraft Explosion None

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot				1	1
Second Pilot				1	1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants				1	1
Other Crew					
Passengers				50	50
- TOTAL ABOARD -				53	53
Other Ground					
- GRAND TOTAL -				53	53

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Administrative Information

Investigator-In-Charge (IIC)

Lorenda Ward

Additional Persons Participating in This Accident/Incident Investigation:

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