



# Aviation Investigation Final Report

<b>Location:</b>	COLORADO SPRNGS, Colorado	<b>Incident Number:</b>	FTW98IA208
<b>Date &amp; Time:</b>	May 7, 1998, 21:30 Local	<b>Registration:</b>	N116FE
<b>Aircraft:</b>	Boeing 727-25C	<b>Aircraft Damage:</b>	Minor
<b>Defining Event:</b>		<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 121: Air carrier - Scheduled		

## Analysis

Federal Express flight 1287 departed Colorado Springs, en route to Memphis, Tennessee. When the airplane was north of the airport and passing 8,500 feet msl, it struck a flock of large white birds, causing an uncontained no. 3 engine failure. There was also a loss of essential electrical power. The captain declared an emergency, returned to the Colorado Springs Airport, and made an uneventful landing. In addition to minor damage to the right side of the fuselage, visual inspection of the engine disclosed bird remains in and around the no. 3 engine. The outboard 4 inches of the first stage compressor blade separated, damaging the first and second stage compressor blades, stator blades, and inlet guide vanes. Shrapnel was ejected through the engine case at the 12 o'clock position, severing the no. 3 electrical bus wire bundle and puncturing the engine inlet anti-ice bleed air duct. The nose and upper engine cowling and thrust reverser were also damaged. The constant speed drive oil cooler was partially separated due to engine vibrations.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: An inadvertent inflight collision with a flock of large birds.

### Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT  
Phase of Operation: CLIMB

Findings

1. (C) OBJECT - BIRD(S)

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Occurrence #2: LOSS OF ENGINE POWER

Phase of Operation: CLIMB

Findings

2. COMPRESSOR ASSEMBLY, BLADE - FOREIGN OBJECT DAMAGE

3. ENGINE SHUTDOWN - INTENTIONAL - PILOT IN COMMAND

## Factual Information

On May 7, 1998, approximately 2130 mountain daylight time, a Boeing 727-25C, N116FE, operated by Federal Express Corporation of Memphis, Tennessee, sustained minor damage when it struck a flock of birds during climbout from Colorado Springs, Colorado. There were no injuries to the airline transport rated captain, first officer, and second officer. Visual meteorological conditions prevailed, and an IFR flight plan was filed for the scheduled domestic cargo flight being operated under Title 14 CFR Part 121. The flight originated approximately 2120.

According to the incident report submitted by Federal Express, flight 1287 took off from Colorado Springs, and was en route to Memphis, Tennessee. When the airplane was north of the airport and passing 8,500 feet msl, it struck "a flock of large white birds." The crew felt "moderate to severe vibrations due to the ingestion of one or more birds into the no. 3 engine." This caused an uncontained engine failure. There was also a loss of essential electrical power. After restoring electrical power using the no. 1 generator, the captain declared an emergency, returned to the Colorado Springs Airport, and made an uneventful landing.

The right hand side of the airplane sustained all the damage. The radome was damaged, and there was a tear in the skin behind the radome. A doubler at F.S. 196 was damaged, and there were multiple skin dents below the pitot-static tube.

Visual inspection of the engine disclosed bird remains in and around the no. 3 engine. The outboard 4 inches of the first stage compressor blade separated, damaging the first and second stage compressor blades, stator blades, and inlet guide vanes. Shrapnel was ejected through the engine case at the 12 o'clock position, severing the no. 3 electrical bus wire bundle and puncturing the engine inlet anti-ice bleed air duct. The nose and upper engine cowling and thrust reverser were also damaged. The constant speed drive oil cooler was partially separated due to engine vibrations.

According to a report submitted by Lufthansa Airmotive Ireland, the facility that disassembled and inspected the no. 3 engine, there was "severe front and rear compressor damage." One of the C1 blades fractured and penetrated the front fan case at the 12 o'clock position. There was also "heavy metal splatter" on all stages of the turbine discs and nozzle guide vanes.

Ingested bird remains were submitted to the Smithsonian Institute and were identified as coming from a Canadian goose. The report stated that the average weight of a Canadian goose is 8 pounds.

## Pilot Information

<b>Certificate:</b>	Airline transport; Commercial; Flight engineer	<b>Age:</b>	38, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	January 28, 1998
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	3051 hours (Total, all aircraft), 2386 hours (Total, this make and model), 638 hours (Pilot In Command, all aircraft), 34 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Boeing	<b>Registration:</b>	N116FE
<b>Model/Series:</b>	727-25C 727-25C	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	19298
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	5
<b>Date/Type of Last Inspection:</b>	March 5, 1998 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	169500 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	3 Turbo jet
<b>Airframe Total Time:</b>	63119 Hrs	<b>Engine Manufacturer:</b>	P&W
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	JT8D-7BQN
<b>Registered Owner:</b>	FEDERAL EXPRESS CORPORATION	<b>Rated Power:</b>	14000 Lbs thrust
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	Air cargo, Supplemental
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	FDEA

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Night/dark
<b>Observation Facility, Elevation:</b>	COS ,6184 ft msl	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	21:58 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Unknown	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 10000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	9 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	360°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	7°C / 4°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	(COS )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	MEMPHIS , TN (MEM )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	21:20 Local	<b>Type of Airspace:</b>	Class E

## Airport Information

<b>Airport:</b>		<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>		<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	3 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 None	<b>Latitude, Longitude:</b>	39.030632,-104.479515(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Scott, Arnold
<b>Additional Participating Persons:</b>	JOSEPH J JORDON; DENVER , CO
<b>Original Publish Date:</b>	May 19, 1999
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=20440">https://data.nts.gov/Docket?ProjectID=20440</a>

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