Birdstrike on approach, Boeing 727-233, November 20, 2001

Micro-summary: This Boeing 727-233 collided with a flock of birds on approach, causing substantial damage.

Event Date: 2001-11-20 at 0027 CST

Investigative Body: National Transportation Safety Board (NTSB), USA

Investigative Body's Web Site: http://www.ntsb.gov/

Cautions:

- 1. Accident reports can be and sometimes are revised. Be sure to consult the investigative agency for the latest version before basing anything significant on content (e.g., thesis, research, etc).
- 2. Readers are advised that each report is a glimpse of events at specific points in time. While broad themes permeate the causal events leading up to crashes, and we can learn from those, the specific regulatory and technological environments can and do change. Your company's flight operations manual is the final authority as to the safe operation of your aircraft!
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National Transportation Safety Board FACTUAL REPORT AYIATION

NTSB ID: MIA02LA023	Aircraft Registration Number: N277FE					
Occurrence Date: 11/20/2001	Most Critical Injury: None					
Occurrence Type: Accident	Investigated By: NTSB					

Location/Time

Nearest City/Place	State	Zip Code	Local Time	Time Zone	
Memphis	TN	38116	0027	CST	
Airport Proximity: Off Airport/Airstrip	Distance From	m Landing Facility:		Direction Fro	m Airport:

Aircraft Information Summary

Aircraft Manufacturer	Model/Series	Type of Aircraft
Boeing	727-233	Airplane

Sightseeing Flight: No Air Medical Transport Flight: No

Narrative

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

On November 20, 2001, about 0027 central standard time, a Boeing 727-233, N277FE, registered to and operated by Federal Express Corporation, as flight 2287, a 14 CFR Part 121 domestic cargo flight from Colorado Springs, Colorado, to Memphis, Tennessee, collided with a flock of birds while on approach to land at Memphis International Airport. Visual meteorological conditions prevailed at the time and an instrument flight rules flight plan was filed. The airplane received substantial damage, and the airline transport-rated captain, first officer, flight engineer, and two passengers were not injured. The flight originated from Colorado Springs, on November 19, 2001, at 2247.

The flightcrew reported that while on final approach for runway 9 at Memphis, at between 1,700 and 2,000 feet agl., at 250 knots, they encountered a flock of large birds. A bird penetrated the airplane under the captains windshield and bird remains entered the cockpit. They continued to Memphis and landed without further incident.

Inspection of the airplane by an FAA inspector after landing showed damage to the area below the captain's windshield and two areas of damage on the right inboard wing area, due to bird strikes.

Radar data from the FAA, Memphis Air Route Traffic Control Center, showed the flight was at about position 35 degrees, 3 minutes, 34 seconds North latitude, and 90 degrees, 4 minutes, 59 seconds West longitude, or about 6 nautical miles west of Memphis International Airport, at the time of the encounter. The FAA, Memphis Approach Control, personnel stated that the Automatic Terminal Information Service, information Romeo was in effect at the time of the accident which contained the 2353 surface weather observation, and that there was no bird activity reported in this information. (See attached Radar Data and Record of Telephone Conversation.)

Examination of feathers recovered from the cockpit and wing area of the aircraft was performed by Carla Dove, Smithsonian Institute, Washington, D.C. The feathers were identified as coming from Snow Goose (Chen caerulescens), with an average weight for this species of 2,450 grams. (See attached email from Carla Dove.)

National Transportation Safety Board
FACTUAL REPORT
AVIATION

NTSB ID: MIA02LA023

Occurrence Date: 11/20/2001

Aircraft Information Aircraft Manufacturer Boeining Model/Series 727-233	AVIATION	Occui	Occurrence Type: Accident											
Airport Name Memphis International Memphis I	Landing Facility/Approach In	formation												
Runway Surface Type: Unknown Runway Surface Condition: Unknown	· , , , ,			Airport ID:	port ID: Airport Elevation Run				nway Used Runway Lengt			h	Runv	vay Width
Runway Surface Condition: Unknown	Memphis International			MEM		Ft. MSL								
Type Instrument Approach; ILS-complete VFR Approach; Information Aircraft Information VFT Approach; Information VFT Approach; Information VFT Approach; Information VFT Approach; ILS-complete VFR Approach; Information VFT Approach; Information	Runway Surface Type: Unknown													
Aircraft Information Aircraft Manufacturer Model/Series Serial Number Z2042 Airworthiness Certificate(s): Transport Landing Gear Type: Retractable - Tricycle Homebuilt Aircraft? No Number of Seats: 5 Certified Max Gross Wt. 197000 LBS Number of Engines: 3 Engine Type:	Runway Surface Condition: Unknown	own												
Aircraft Information Aircraft Manufacturer Boeing Model/Series 727-233	Type Instrument Approach: ILS-co	omplete												
Aircraft Manufacturer Boeing Airworthiness Certificate(s): Transport Landing Gear Type: Retractable - Tricycle Homebuilt Aircraft? No Number of Seats: 5 Certified Max Gross Wt. 197000 LBS Number of Engines: 3 Engine Manufacturer: P8W JT8-17Q Rated Power: 16000 LBS - Aircraft Inspection Information Type of Last Inspection Information Type of Last Inspection Information ELT Installed? No ELT Operated? No ELT Operated? No ELT Address 3610 Hacks Cross Road City Memphis Street Address Same as Reg'd Aircraft Owner Game as Reg'd Aircraft Owner Same as Reg'd Aircraft Owner City Certificate(s): Cargo; Supplemental Operator Does Business As: Operator Certificate(s): Cargo; Supplemental Operator Degration Conducted Under: Part 121: Air Carrier Type of Flight Conducted Under: Part 121: Air Carrier Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo	VFR Approach/Landing:													
Boeing 727-233 22042 Airworthiness Certificate(s): Transport Landing Gear Type: Retractable - Tricycle Homebuilt Aircraft? No Number of Seats: 5 Certified Max Gross Wt. 197000 LBS Number of Engines: 3 Engine Type: Pay Homebuilt Aircraft? No Number of Seats: 5 Certified Max Gross Wt. 197000 LBS Number of Engines: 3 Engine Type: Pay Homebuilt Aircraft? No Number of Seats: 5 Certified Max Gross Wt. 197000 LBS Number of Engines: 3 Engine Type: Pay Homebuilt Aircraft Operator Information Engine Manufacturer: Pay Model/Series: JT8-17Q Information Airframe Total Time Since Last Inspection Airframe Total Time AAIP AAIP No ELT Aided in Locating Accident Site? No Owner/Operator Information Registered Aircraft Owner Federal Express Corporation Street Address Sane as Regid Aircraft Owner City State Zip Code TN 38125 Operator Operator Does Business As: Operator Designator Code: FDEA - Type of U.S. Certificate(s): Cargo; Supplemental Operator Operator Certificate: Operator Conducted Under: Part 121: Air Carrier Type of Flight Operation Conducted Non-scheduled; Domestic; Cargo	Aircraft Information													
Airworthiness Certificate(s): Transport Landing Gear Type: Retractable - Tricycle Homebulit Aircraft? No Number of Seats: 5 Certified Max Gross Wt. 19700 LBS Number of EngineS: 3 Engine Type: Engine Manufacturer: PaW JT8-17Q 18-17Q 18-17	Aircraft Manufacturer												er	
Landing Gear Type: Retractable - Tricycle Homebullt Aircraft? No Number of Seats: 5				121	-233						2204			
Homebuilt Aircraft? No	Airworthiness Certificate(s): Trans	sport												
Engine Type: Turbo Fan P&W Size Inspection Information Type of Last Inspection Information Date of Last Inspection AAIP Date of Last Inspection AAIP Date of Last Inspection AAIP Date of Last Inspection BELT Aided in Locating Accident Site? No ELT Aided in Locating Accident Site? No Owner/Operator Information Street Address 3810 Hacks Cross Road City Memphis Street Address Same as Reg'd Aircraft Owner Same as Reg'd Aircraft Owner Operator Does Business As: Type of U.S. Certificate(s): Cargo; Supplemental Operation Flight Conducted Under: Part 121: Air Carrier Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo	Landing Gear Type: Retractable	- Tricycle												
Turbo Fan		Number of Seats:	5	Certifi	Certified Max Gross Wt.					197000 LBS Numbe			er of Engines: 3	
Date of Last Inspection AAIP Date of Last Inspection 08/2001 Time Since Last Inspection 188 Hours Airframe Total Time 36168 Hours - Emergency Locator Transmitter (ELT) Information ELT Installed? No ELT Operated? No ELT Operated? No ELT Aided in Locating Accident Site? No Owner/Operator Information Registered Aircraft Owner Federal Express Corporation City Memphis Street Address Same as Reg'd Aircraft Owner City C														
AAIP 08/2001 188 Hours 36168 Hours - Emergency Locator Transmitter (ELT) Information ELT Installed? No ELT Operated? No ELT Operated? No ELT Aided in Locating Accident Site? No Owner/Operator Information Registered Aircraft Owner Street Address 3610 Hacks Cross Road City Memphis Tin 38125 Operator of Aircraft Same as Reg'd Aircraft Owner City State Zip Code Same as Reg'd Aircraft Owner City State Zip Code Operator Does Business As: Operator Designator Code: FDEA - Type of U.S. Certificate(s) Held: Air Carrier Operating Certificate(s): Cargo; Supplemental Operator Defight Conducted Under: Part 121: Air Carrier Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo	- Aircraft Inspection Information													
- Emergency Locator Transmitter (ELT) Information ELT Installed? No ELT Operated? No ELT Aided in Locating Accident Site? No Owner/Operator Information Registered Aircraft Owner Federal Express Corporation Street Address Galo Hacks Cross Road City Memphis Street Address Same as Reg'd Aircraft Owner Same as Reg'd Aircraft Owner City Operator Does Business As: - Type of U.S. Certificate(s) Held: Air Carrier Operating Certificate(s): Cargo; Supplemental Operator Development	Type of Last Inspection			Date of La	Date of Last Inspection Time Sir			nce Last Insp	Airfran	ne To	tal Time			
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Federal Express Corporation City Memphis State TN State TN 38125 Street Address Same as Reg'd Aircraft Owner City Operator Does Business As: Type of U.S. Certificate(s) Held: Air Carrier Operating Certificate Operator Supplemental Operator Designator Code: FDEA Operator Designator Code: FDEA Operator Designator Code: FDEA Type of U.S. Certificate: Operator Designator Code: FDEA Operator Designator Code: FDEA Type of Flight Conducted Under: Part 121: Air Carrier Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo	Owner/Operator Information													
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Operator Does Business As: Operator Designator Code: FDEA - Type of U.S. Certificate(s) Held: Air Carrier Operating Certificate(s): Cargo; Supplemental Operator Certificate: Operator Certificate: Operator Certificate: Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo	Operator of Aircraft			0001			Reg	'd Aircra	aft Owner					
- Type of U.S. Certificate(s) Held: Air Carrier Operating Certificate(s): Cargo; Supplemental Operating Certificate: Operator Certificate: Regulation Flight Conducted Under: Part 121: Air Carrier Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo	Same as Reg'd Aircraft Owner									Stat	е	Zip Code		
Air Carrier Operating Certificate(s): Cargo; Supplemental Operating Certificate: Operator Certificate: Regulation Flight Conducted Under: Part 121: Air Carrier Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo	Operator Does Business As:			•				Ol	perator Desig	nator Co	de: FD	EA		
Operating Certificate: Regulation Flight Conducted Under: Part 121: Air Carrier Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo	- Type of U.S. Certificate(s) Held:	- Type of U.S. Certificate(s) Held:												
Regulation Flight Conducted Under: Part 121: Air Carrier Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo	Air Carrier Operating Certificate(s)	: Cargo; Suppleme	ental											
Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo	Operating Certificate: Operator Certificate:													
	Regulation Flight Conducted Under: Part 121: Air Carrier													
EACTIIAI DEDODT AVIATIONI Page 2	Type of Flight Operation Conducted	: Non-scheduled:	Dome	stic; Carg	JO									
Fage 2			FACTI	JAL REP	ORT	`- AVIATIO	ON							Page 2

National Transportation Safety Board
FACTUAL REPORT
AVIATION

NTSB ID: MIA02LA023

Occurrence Date: 11/20/2001

	AVIATI	Occurrence Type: Accident					1						
	AVIATI ETY BO	Plan.		Occurrent	te Type. At	cident							
	Information									1 -			
Name						City	City				ate	Date of Birth	Age
On File						On File	On File On File On File						41
Sex: M	Seat Occupied:	: Left	Prin	cipal Profes	sion: Civilia	n Pilot			(Certifica	ite Num	ber: On File	
Certificate(s): Airlir	ne Transpor	t; Flight Eng	ineer									
Airplane Ra	Airplane Rating(s): Multi-engine Land; Single-engine Land												
Rotorcraft/Glider/LTA: None													
Instrument	Rating(s): Airpl	ane											
Instructor R	Instructor Rating(s): None												
Type Rating	g/Endorsement fo	or Accident/In	cident Aircrat	t? Yes			Cı	urrent Bie	nnial Fligh	t Revie	w? 01/	2001	
Medical Ce	rt.: Class 1	Medica	l Cert. Status	: Valid Me	dicalno wa	aivers/li	m.		Date of	Last M	ledical E	Exam: 11/2001	
						_							
- Flight Tim	ne Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Mult-Engine	Night		Ir Actual	strument Simular	ed	Rotorcraft	Glider	Lighter Than Air
Total Time		2280	2280										
Pilot In Con	nmand(PIC)	490	490			-							
Instructor													
Last 90 Day	•	72	72										
Last 30 Day		34	34										
Last 24 Hou		2	2			<u> </u>					Т.		
Seatbelt Us	sed? Yes	Shou	Ider Harness	Used? Yes			Toxico	logy Perf	ormed? N	0	S	econd Pilot? Ye	es
	n/Itinerary												
	tht Plan Filed: IF	R				ı	_	Τ.			Τ_		
Departure F							State		irport Ident	ifier		arture Time	Time Zone
Colorado	Spring						СО	С	cos		2247		CST
Destination							State	А	irport Iden	tifier			
Same as	Accident/Incide	ent Location						M	1EM				
Type of Cle	Type of Clearance: IFR												
Type of Air	Type of Airspace: Class D												
Weather Information													
Source of I	Source of Briefing: Company												
Method of	Briefing: Teleph	none											
				FACTUAL	REPORT	- AVIA	TION	1					Page 3

National Transportation Safety Board
FACTUAL REPORT
AVIATION

NTSB ID: MIA02LA023

Occurrence Date: 11/20/2001

Occurrence Type: Accident

	FIYBOR		Occurrent	e Type.	Accident							
Weather Information												
WOF ID	Observation Time	Time Zone	WOF Elevati	on	WOF Dis	stance Fro	m Accid	dent Site	Direction From Accident Site			
MEM	0053	CST	332 Ft.	. MSL				6 NM		90 Deg. Mag.		
Sky/Lowes	st Cloud Condition: Clear	r				Ft. A	.GL	Condition o	f Ligh	nt: Night/Dark		
Lowest Ce	eiling: None		Ft.	AGL	Visibil	lity:	10	SM	Alti	meter:	30.27	"Hg
Temperatu	ure: 8 °C [Dew Point:	-1 °C	Wind	Direction:	10			Dei	nsity Altitude:	0	Ft.
Wind Spee	ed: 10	Gusts: 16		Weath	ner Condti	ons at Acc	cident S	ite: Visual C	Cond	itions		
Visibility (F	RVR): Ft.	Visibility (R\	/V)	SM	Intensity	of Precipi	itation:					
Restriction	ns to Visibility: None									_		
Type of Pro	ecipitation: None											
Accident	Information											
Aircraft Dar	mage: Substantial		Aircraft Fire	e: None				Aircraft Exp	losio	n None		
Classificati	ion: U.S. Registered/U.	.S. Soil										
- Injury Su	mmary Matrix	Fatal Ser	rious Mino	or	None	TOTAL						
First Pi	ilot				1		1					
Second	d Pilot				1		1]					
Studen	nt Pilot						7					
Flight I	nstructor						7					
Check	Pilot						7					
Flight E	Engineer				1		1					
Cabin /	Attendants						7					
Other (Other Crew											
Passer	ngers			\neg	2		2					
- TOTAL /	ABOARD -				5		5					
Other Ground												
- GRANE	O TOTAL -				5		5					

National Transportation Safety Board

FACTUAL REPORT AVIATION NTSB ID: MIA02LA023

Occurrence Date: 11/20/2001

Occurrence Type: Accident

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Investigator-In-Charge (IIC)

Jeffrey L. Kennedy

Additional Persons Participating in This Accident/Incident Investigation:

Steven Brown Aviation Safety Inspector FAA FSDO Memphis, TN 38118