



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

# Aviation Investigation Final Report

<b>Location:</b>	St. Louis, Missouri	<b>Accident Number:</b>	DCA24LA051
<b>Date &amp; Time:</b>	December 19, 2023, 17:30 Local	<b>Registration:</b>	N8514F
<b>Aircraft:</b>	Boeing 737	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Birdstrike	<b>Injuries:</b>	107 None
<b>Flight Conducted Under:</b>	Part 121: Air carrier - Scheduled		

## Analysis

Southwest Airlines flight 2217 struck a bird while climbing though 6,000 ft. after departure from the St. Louis Lambert International Airport (STL), St. Louis, Missouri.

According to the flight crew, during the climb they saw a “quick flash” pass diagonally from right to left across the nose of the airplane, followed by a “thud” sound. Which they surmised was a bird that had impacted the nose or belly area of the airplane. After confirming that the flight controls, engines, and pressurization system were operating normally, they decided to continue to their destination.

They advised the company of a possible bird strike via an aircraft communicating and reporting system (ACARS) message to coordinate with maintenance for an inspection and damage assessment upon landing. The flight continued normally with no change in the performance or operation of the airplane and landed without further incident.

After landing the crew performed a post-flight walk around to search for any evidence of a bird strike, when they discovered impact damage to the leading edge of the left horizontal stabilizer (see figure 1). Maintenance personnel subsequently discovered a crack, about 12 inches long, in the left horizontal stabilizer lower spar chord. Although the bird impact caused substantial damage to the left horizontal stabilizer, the flight crew was able to control the airplane and the captain reported that “the flight controls and everything felt normal”.



**Figure 1** – Photo of the left horizontal stabilizer leading edge showing the location of the bird impact. (Source: Southwest Airlines)

A review of pilot reports near the time and location of the event revealed that no prior information about bird activity had been reported.

**Probable Cause and Findings**

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

A bird strike during climbout.

Findings	
Environmental issues	Animal(s)/bird(s) - Effect on equipment

## Factual Information

### History of Flight

Enroute-climb to cruise	Birdstrike (Defining event)
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### Pilot Information

Certificate:	Airline transport	Age:	54,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	5-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	August 21, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	April 16, 2023
Flight Time:	21561 hours (Total, all aircraft), 9460 hours (Total, this make and model), 3304 hours (Pilot In Command, all aircraft), 123 hours (Last 90 days, all aircraft), 26 hours (Last 30 days, all aircraft)		

### Co-pilot Information

Certificate:	Airline transport	Age:	26,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	5-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	August 1, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	September 27, 2023
Flight Time:	1923 hours (Total, all aircraft), 222 hours (Total, this make and model), 1012 hours (Pilot In Command, all aircraft), 222 hours (Last 90 days, all aircraft), 64 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Boeing	<b>Registration:</b>	N8514F
<b>Model/Series:</b>	737 800	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2016	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	36975
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	182
<b>Date/Type of Last Inspection:</b>	December 13, 2023 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	174700 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Turbo fan
<b>Airframe Total Time:</b>	23092 Hrs at time of accident	<b>Engine Manufacturer:</b>	CFM INTL
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	CFM56-7B27E/F
<b>Registered Owner:</b>	SOUTHWEST AIRLINES CO	<b>Rated Power:</b>	27300 Lbs thrust
<b>Operator:</b>	SOUTHWEST AIRLINES CO	<b>Operating Certificate(s) Held:</b>	Flag carrier (121)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Dusk
<b>Observation Facility, Elevation:</b>	KSTL, 531 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	16:51 Local	<b>Direction from Accident Site:</b>	325°
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 24000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	9 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	140°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.25 inches Hg	<b>Temperature/Dew Point:</b>	4°C / -8°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	St. Louis, MO	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Chicago, IL (MDW)	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class B

## Wreckage and Impact Information

<b>Crew Injuries:</b>	6 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	101 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	107 None	<b>Latitude, Longitude:</b>	38.747222,-90.361389(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Brazy, Douglass
<b>Additional Participating Persons:</b>	Dave Keenan; FAA/AVP110; Washington, DC
<b>Original Publish Date:</b>	March 12, 2024
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 4</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=193561">https://data.nts.gov/Docket?ProjectID=193561</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).