



# National Transportation Safety Board Aviation Accident Final Report

<b>Location:</b>	Philadelphia, PA	<b>Accident Number:</b>	DCA18MA142
<b>Date &amp; Time:</b>	04/17/2018, 1103 EDT	<b>Registration:</b>	N772SW
<b>Aircraft:</b>	BOEING 737 7H4	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Powerplant sys/comp malf/fail	<b>Injuries:</b>	1 Fatal, 8 Serious, 125 Minor, 6 None
<b>Flight Conducted Under:</b>	Part 121: Air Carrier - Scheduled		

## Analysis

The NTSB's full report is available at <http://www.nts.gov/investigations/AccidentReports/Pages/AccidentReports.aspx>. The Aircraft Accident Report number is NTSB/AAR-19/03.

On April 17, 2018, about 1103 eastern daylight time, Southwest Airlines flight 1380, a Boeing 737-7H4, N772SW, experienced a left engine failure while climbing through flight level 320 en route to the flight's assigned cruise altitude. The flight had departed from LaGuardia Airport, Queens, New York, about 30 minutes earlier. As a result of the engine failure, the flight crew conducted an emergency descent and diverted to Philadelphia International Airport (PHL), Philadelphia, Pennsylvania. Portions of the left engine inlet and fan cowl separated from the airplane, and fragments from the inlet and fan cowl struck the left wing, the left-side fuselage, and the left horizontal stabilizer. One fan cowl fragment impacted the left-side fuselage near a cabin window, and the window departed the airplane, which resulted in a rapid depressurization. The airplane landed safely at PHL about 17 minutes after the engine failure occurred. Of the 144 passengers and 5 crewmembers aboard the airplane, 1 passenger received fatal injuries, and 8 passengers received minor injuries. The airplane was substantially damaged. The regularly scheduled domestic passenger flight was operating under the provisions of Title 14 *Code of Federal Regulations* Part 121 with a destination of Dallas Love Field, Dallas, Texas.

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

A low-cycle fatigue crack in the dovetail of fan blade No. 13, which resulted in the fan blade separating in flight and impacting the engine fan case at a location that was critical to the structural integrity and performance of the fan cowl structure. This impact led to the in-flight separation of fan cowl components, including the inboard fan cowl aft latch keeper, which struck the fuselage near a cabin window and caused the window to depart from the airplane, the cabin to rapidly depressurize, and the passenger fatality.

## Probable Cause and Findings

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## Findings

<b>Aircraft</b>	Compressor section - Fatigue/wear/corrosion (Cause) Nacelle/pylon misc structure - Damaged/degraded (Cause) Passenger compartment windows - Damaged/degraded (Cause)
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## Factual Information

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### History of Flight

Enroute-climb to cruise	Powerplant sys/comp malf/fail (Defining event)
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### Aircraft and Owner/Operator Information

Aircraft Make:	BOEING	Registration:	N772SW
Model/Series:	737 7H4 7H4	Aircraft Category:	Airplane
Year of Manufacture:	2000	Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	27880
Landing Gear Type:	Tricycle	Seats:	
Date/Type of Last Inspection:		Certified Max Gross Wt.:	154500 lbs
Time Since Last Inspection:		Engines:	2 Turbo Fan
Airframe Total Time:		Engine Manufacturer:	CFM INTL.
ELT:		Engine Model/Series:	CFM56 SERIES
Registered Owner:	SOUTHWEST AIRLINES CO	Rated Power:	
Operator:	SOUTHWEST AIRLINES CO	Operating Certificate(s) Held:	Flag carrier (121)
Operator Does Business As:		Operator Designator Code:	SWAA

### Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:		Visibility	
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	
Precipitation and Obscuration:			
Departure Point:	NEW YORK, NY (LGA)	Type of Flight Plan Filed:	IFR
Destination:	DALLAS, TX (DAL)	Type of Clearance:	IFR
Departure Time:		Type of Airspace:	Class A

### Airport Information

Airport:	Philadelphia (KPHL)	Runway Surface Type:	
Airport Elevation:	35 ft	Runway Surface Condition:	
Runway Head:	371	IFR Approach:	ILS

Runway Used:	Z/L	IFR Approach:	ILS
Runway Length/Width:	12000 ft / 200 ft	VFR Approach/Landing:	

## Wreckage and Impact Information

Crew Injuries:	6 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 Fatal, 8 Serious, 125 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal, 8 Serious, 125 Minor, 6 None	Latitude, Longitude:	39.871944, -75.240000

## Administrative Information

Investigator In Charge (IIC):	William R English	Report Date:	03/10/2020
Additional Participating Persons:			
Publish Date:	03/10/2020		
Note:	The NTSB traveled to the scene of this accident.		
Investigation Docket:	<a href="http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=97056">http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=97056</a>		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).