
Loss of engine cowlings, Douglas DC-8-63F, February 19, 2000

Micro-summary: This Douglas DC-8-63F lost its #1 and #2 engine cowlings.

Event Date: 2000-02-19 at 2137 PST

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

Investigative Body's Web Site: <http://www.nts.gov/>

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		NTSB ID: SEA00LA046		Aircraft Registration Number: N811CK	
		Occurrence Date: 02/19/2000		Most Critical Injury: None	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place SEATTLE		State WA	Zip Code 98168	Local Time 2137	Time Zone PST
Airport Proximity: On Airport		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer McDonnell Douglas		Model/Series DC-8-63F		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
<p>On February 19, 2000, approximately 2137 Pacific standard time, Connie 8102, a Boeing (formerly McDonnell Douglas) DC-8-63F airplane (N811CK) being operated by Kitty Hawk International, Inc. on a 14 CFR 121 non-scheduled international cargo flight from Seattle-Tacoma International Airport, Seattle, Washington, to Anchorage, Alaska, lost its number 1 and 2 engine cowlings on takeoff from Seattle. Following the separation of the number 1 and 2 cowlings, the flight returned to Seattle-Tacoma International and landed without further incident. There were no injuries to the airline transport pilot-in-command, first officer, or flight engineer aboard the aircraft, nor were any injuries reported to persons on the ground. However, post-accident inspection of the aircraft revealed substantial damage to the aircraft's left wing and left horizontal stabilizer. Visual meteorological conditions were reported at Seattle-Tacoma International at 2156, and an instrument flight rules (IFR) flight plan had been filed for the flight.</p> <p>The aircraft maintenance log indicated that on the previous flight (from Anchorage to Seattle, arriving at 0718), the flight crew had written up discrepancies that the number 2 engine would not go into reverse thrust, and that the captain's course deviation indicator (CDI) was frozen. The frozen captain's CDI was determined to be a non-deferrable, Aircraft-on-Ground (AOG) item. There was also a deferred maintenance item (DMI) on the number 1 thrust reverser. Due to concerns expressed by the captain of the incoming flight about the operability of the thrust reversers in consideration of icy runway conditions at Anchorage, maintenance also decided to lube, inspect, and check all four thrust reversers for proper operation. In an interview with an FAA inspector and a written statement, the company mechanic assigned to work on the number 2 thrust reverser and the frozen CDI problem (who reported his regular shift was from 0430 until 1300) stated that troubleshooting the CDI problem took several hours. He reported that during his time on shift, he also completed the work on the number 2 thrust reverser. He stated that when he was informed that the CDI problem had been fixed, "I realized that I no longer had an AOG [aircraft] and that I had already worked 3 hours of overtime and had not taken a lunch." He reported that he asked the mechanic working on the number 1 thrust reverser to finish up the aircraft and close all engine cowls, and that he then signed off the number 2 thrust reverser in the maintenance log and left for the day. (This mechanic stated that he worked until 1645 on this shift, 3 hours and 45 minutes past the end of his normal shift.) This mechanic reported that when he left, all cowlings were wide open and held open by their hold-open rods.</p> <p>The mechanic who worked on the number 1 thrust reverser, and who was asked by the first mechanic to close all engine cowls, reported in a written statement that he lowered the number 1 and 2 cowl doors, but that he and another mechanic were unable to secure and lock the doors. He stated that about 1600, they returned to the shop for assistance in locking and securing the cowl doors. He stated that at that time, he entered in the turnover log that all four cowl doors required securing, and also verbally reported this to two other mechanics from the next shift. A copy of the first shift end-of-shift turnover log for the day of the accident indicated "811CK requires all 4 cow [sic] doors secured."</p>					
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One of the company mechanics who took the turnover report on the cowl doors from the first-shift mechanic stated that at about 1530, he received a tie-in from that mechanic (the one assigned to the number 1 thrust reverser) that all cowlings on N811CK needed to be closed. He stated, however, that he did not review the tie-in log. This mechanic told an FAA inspector he reported for work at 1500 on the day of the accident, and that on the previous shift he was scheduled to go off duty at 0130 but actually worked until 0800. He stated he then went home but was unable to sleep and reported back for his regular duty at 1500. He stated his primary duty that day was a Boeing 747 (B-747) and that he did not get to N811CK until about 1630 or 1645. He stated that at that time, he noted that the cowlings for the number 1 and number 2 engines were closed and that those for the number 3 and 4 engines were wide open. He reported that he assisted in closing the number 3 engine cowl, but did not check the number 1 or number 2 cowlings to ensure that they were secured. He subsequently reviewed the paperwork for N811CK and signed the airworthiness release for the aircraft. (A review of the aircraft logs disclosed no specific documentation that the number 1 or 2 cowlings had either been opened or closed.)

In written statements, other company mechanics who stated they went out to help close the number 3 and/or number 4 cowlings (after the first shift mechanic reported that all four cowlings needed to be secured) reported that upon arrival at the aircraft, they observed the number 1 and 2 cowlings doors closed and the number 3 and 4 cowlings doors open. None of the mechanics indicated in their statements that they checked that the number 1 or 2 cowlings were latched, although the individual who marshaled the aircraft out on the accident flight indicated that he performed a "basic walk-around" of the aircraft prior to marshaling it out.

The captain reported that his first indication of any problems was at rotation, when the number 2 engine N2 (high pressure section) RPM indication went to zero and the number 2 engine generator light came on. He stated he also noticed the aircraft roll left slightly at that time. The captain reported that he and his crew were diagnosing the problem when the control tower called and notified him that his aircraft had left debris on the runway during takeoff. The captain stated that he then called company headquarters in Ypsilanti, Michigan, and decided to return to Seattle-Tacoma International.

The captain stated that the preflight walk-around inspection on the aircraft is done by the flight engineer. The flight engineer reported in a written statement that the cowlings were closed when he arrived at the aircraft, that he observed no abnormalities during the exterior preflight inspection, and that "All engine cowlings [were] verified closed and latched prior to takeoff."

The number 1 and 2 engine cowls completely departed the aircraft during the accident sequence. Several cowl sections were found on the Seattle-Tacoma International Airport runway; two cowl sections were also found in a residential area in the Browns Point area of Tacoma, Washington, approximately 10 nautical miles south-southwest of the airport. The cowl sections left on the runway were returned to Kitty Hawk's facility at the airport and secured pending examination by NTSB and FAA investigators. The sections which fell into the Browns Point area were recovered by an FAA inspector and returned to Kitty Hawk after examination by NTSB and FAA investigators. NTSB and FAA investigators examined all recovered cowl sections on February 23, 2000. No cowl sections were attached to each other by any latch mechanisms, and no evidence of distress to any latches, latching pins, or associated areas was observed. Of four latches observed on the sections left on the runway, three were observed in the unsecured position and one was observed in the latched position (but not engaged to its mating latch pin); however, a Kitty Hawk maintenance representative reported to the NTSB that the latch found in the latched position had been in the unsecured position when returned, and that the airline's personnel had left it in the latched position in the course of demonstrating/practicing its operation. Both of the two latches observed on one of the sections recovered from the Browns Point area were observed to be in the unsecured position.

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The company's Flight Operating Manual contains detailed procedures for checking the engine cowlings and doors during the preflight walk-around inspection as follows: "Check engine cowl for general condition and properly secured. Check nacelle latches through cowl inspection holes. Nacelle latch pins and hooks should be engaged. DC-8-62/63 check square button in recessed area of lock is flush, cowl seam even and secure...."

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Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
SEATTLE-TACOMA INTL	SEA	429 Ft. MSL	16L	11900	150
Runway Surface Type: Asphalt					
Runway Surface Condition:					
Type Instrument Approach:					
VFR Approach/Landing:					
Aircraft Information					
Aircraft Manufacturer		Model/Series		Serial Number	
McDonnell Douglas		DC-8-63F		46147	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 5	Certified Max Gross Wt.	353000 LBS	Number of Engines: 4	
Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:		
Turbo Jet	P&W	JT3D-7A	19000 LBS		
- Aircraft Inspection Information					
Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time		
Continuous Airworthiness	02/2000	20 Hours	46087 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? Yes	ELT Operated? No	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner		Street Address			
KITTY HAWK INTERNATIONAL INC.		842 WILLOW RUN AIRPORT			
		City	State	Zip Code	
		YPSILANTI	MI	48198	
Operator of Aircraft		Street Address			
Same as Reg'd Aircraft Owner		Same as Reg'd Aircraft Owner			
		City	State	Zip Code	
Operator Does Business As: AMERICAN INTERNATIONAL AIRWAYS			Operator Designator Code: K4HA		
- Type of U.S. Certificate(s) Held:					
Air Carrier Operating Certificate(s): Supplemental					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 121: Air Carrier					
Type of Flight Operation Conducted: Non-scheduled; International; Cargo					
FACTUAL REPORT - AVIATION					

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: SEA00LA046
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	Occurrence Type: Accident

First Pilot Information

Name On File	City On File	State On File	Date of Birth	Age 50
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Sex: M	Seat Occupied: Left	Principal Profession: Civilian Pilot	Certificate Number:
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Certificate(s): Airline Transport; Flight Engineer

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

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): None

Type Rating/Endorsement for Accident/Incident Aircraft? Yes	Current Biennial Flight Review?
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Medical Cert.: Class 1	Medical Cert. Status: Valid Medical--w/ waivers/lim.	Date of Last Medical Exam: 10/1999
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- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	8800	7200	1000	7800	5000					
Pilot In Command(PIC)	7000	6000	1000	7000						
Instructor										
Last 90 Days	239	239								
Last 30 Days	56	56								
Last 24 Hours	2	2								

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed?	Second Pilot? Yes
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Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

Departure Point Same as Accident/Incident Location	State	Airport Identifier SEA	Departure Time 2137	Time Zone PST
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Destination ANCHORAGE	State AK	Airport Identifier ANC	
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Type of Clearance: IFR

Type of Airspace: Class B

Weather Information

Source of Briefing:

Method of Briefing:

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Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
SEA	2156	PST	429 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Clear				0 Ft. AGL	Condition of Light: Night/Dark
Lowest Ceiling: None			0 Ft. AGL	Visibility: 10 SM	Altimeter: 29.00 "Hg
Temperature: 6 °C	Dew Point: -5 °C	Wind Direction: 100		Density Altitude: Ft.	
Wind Speed: 11	Gusts:	Weather Conditions at Accident Site: Visual Conditions			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	Intensity of Precipitation: Unknown			
Restrictions to Visibility: None					
Type of Precipitation: None					

Accident Information		
Aircraft Damage: Substantial	Aircraft Fire: None	Aircraft Explosion: None

Classification: U.S. Registered/U.S. Soil					
- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot				1	1
Second Pilot				1	1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer				1	1
Cabin Attendants					
Other Crew				2	2
Passengers					
- TOTAL ABOARD -				5	5
Other Ground	0	0	0		0
- GRAND TOTAL -	0	0	0	5	5

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Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

GREGG NESEMEIER

Additional Persons Participating in This Accident/Incident Investigation:

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RENTON, WA 98055