
Contained engine failure, Douglas DC-9-51, February 9, 1998

Micro-summary: This Douglas DC-9-51 experienced an engine failure of the #2 engine on takeoff.


Event Date: 1998-02-09 at 947 HST

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

Investigative Body's Web Site: <http://www.nts.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!***
 3. Reports may or may not represent reality. Many many non-scientific factors go into an investigation, including the magnitude of the event, the experience of the investigator, the political climate, relationship with the regulatory authority, technological and recovery capabilities, etc. It is recommended that the reader review all reports analytically. Even a "bad" report can be a very useful launching point for learning.
 4. Contact us before reproducing or redistributing a report from this anthology. Individual countries have very differing views on copyright! We can advise you on the steps to follow.
-

| | | | | | |
|---|--|---------------------------------|----------------------------------|--------------------------------------|------------------|
|  | | NTSB ID: LAX981A085 | | Aircraft Registration Number: N601AP | |
| | | Occurrence Date: 02/09/1998 | | Most Critical Injury: None | |
| | | Occurrence Type: Incident | | Investigated By: NTSB | |
| Location/Time | | | | | |
| Nearest City/Place HONOLULU | | State HI | Zip Code 96819 | Local Time 0947 | Time Zone HST |
| Airport Proximity: On Airport | | Distance From Landing Facility: | | Direction From Airport: | |
| Aircraft Information Summary | | | | | |
| Aircraft Manufacturer McDonnell Douglas | | Model/Series DC-9-51 | | 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 9, 1998, at 0947 hours Hawaii standard time, Hawaiian Airlines flight 158, a McDonnell Douglas DC-9-51, N601AP, aborted takeoff from Honolulu International Airport, Honolulu, Oahu, Hawaii, following a contained engine failure. The aircraft sustained minor damage; however, none of the 139 passengers nor the crew of 5 were injured. The aircraft was operated by Hawaiian Airlines, Inc., under 14 CFR Part 121 when the incident occurred. The operation was originating at the time of the incident as a scheduled domestic passenger flight to Kona, Hawaii. Visual meteorological conditions prevailed at the time and an IFR flight plan was filed.</p> <p>During the takeoff roll, about 90 knots, the crew heard a loud oscillating sound. In response, the captain initiated an aborted takeoff. The first officer called the tower operator and asked if they saw anything unusual. The operator responded by saying that he did not. As the aircraft continued to decelerate, the tower operator informed the flight crew that a fire was now visible in the area of the No. 2 engine. The captain was able to bring the aircraft to a stop on a high speed taxiway then initiated the engine fire and emergency evacuation checklists.</p> <p>The No. 4 main landing gear tires deflated during the incident. An inspection revealed the associated thermal fuse plugs had melted.</p> <p>A flight attendant opened the forward right service door; however, the emergency evacuation slide did not inflate. The captain then directed the forward left cabin door and airstairs be deployed. The passengers and crew all deplaned through the left cabin door without further incident.</p> <p>An inspection of the No. 2 engine by Federal Aviation Administration (FAA) inspectors revealed the separation of the No. 6 roller bearing cage. After the incident, 19 of the 26 roller bearings were recovered. The bearing cage was found on the runway in two pieces. The No. 3 & 4 turbine blades and bearing support housing rods exhibited scarring and deformation.</p> <p>An FAA cabin safety specialist inspected the forward right service door after the incident. He found the door fully open with the girt bar in place. The slide had come out of the bustle, but it did not come out of the packing. The slide was uninflated, hanging outside the doorway. The flight attendant reported that she had heard a "hiss" at the time she opened the service door.</p> <p>The specialist noted that the pressure gauge on the inflation bottle for the slide read 0 pounds. He then directed that the slide be removed and taken to the airline slide shop where it was tested with a fully charged bottle. The slide inflated fully with no leaks or tears observed.</p> <p>The bottle (Part No. 300117-100) was last checked and found to be within pressure limits during a 125-hour service check on January 22, 1998. According to the aircraft records, the last overhaul on the bottle was performed on September 22, 1995. The bottles are scheduled to be overhauled every 3 years. The next overhaul for the bottle in the forward right door was scheduled for</p> | | | | | |
| FACTUAL REPORT - AVIATION | | | | | |
| Page 1 | | | | | |

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: LAX981A085

Occurrence Date: 02/09/1998

Occurrence Type: Incident


Narrative (Continued)


September 6, 1998.

Historically, some bottles have been known to experience loss of pressure over time. This has been attributed to misalignment of the poppet valve "O" ring seal (Part No. 1A2313-3). According to the operator, the bottle was pressure checked and overhauled after the incident.

According to the operations manual, daily pressure checks of the inflation bottles are required. During the investigation, the operator discovered that a change to the operations manual had resulted in confusion as to whose responsibility it was to perform those daily checks. The manual stated that it is the captain's responsibility to insure that the bottle is pressurized but there is no corresponding item on the preflight inspection checklist. Consequently, the flight crew believed that maintenance personnel had incorporated the checks in their daily inspection. Conversely, maintenance personnel reported that they believed the flight crews were performing the checks. Until the incident, the operator was unaware that the inspections were not being accomplished.

The last major inspection of the aircraft was completed in October, 1996.

| | | | | | |
|--|-------------------------|--------------------------------------|--------------------------------|----------------------|--------------|
|  National Transportation Safety Board FACTUAL REPORT AVIATION | | NTSB ID: LAX981A085 | | | |
| | | Occurrence Date: 02/09/1998 | | | |
| | | Occurrence Type: Incident | | | |
| Landing Facility/Approach Information | | | | | |
| Airport Name | Airport ID: | Airport Elevation | Runway Used | Runway Length | Runway Width |
| HONOLULU INTERNATIONAL | HNL | 13 Ft. MSL | 8R | 12000 | 200 |
| Runway Surface Type: Asphalt | | | | | |
| Runway Surface Condition: Dry | | | | | |
| Type Instrument Approach: | | | | | |
| VFR Approach/Landing: | | | | | |
| Aircraft Information | | | | | |
| Aircraft Manufacturer | | Model/Series | | Serial Number | |
| McDonnell Douglas | | DC-9-51 | | 47658 | |
| Airworthiness Certificate(s): Transport | | | | | |
| Landing Gear Type: Retractable - Tricycle | | | | | |
| Homebuilt Aircraft? No | Number of Seats: 144 | Certified Max Gross Wt. | 121000 LBS | Number of Engines: 2 | |
| Engine Type: | Engine Manufacturer: | Model/Series: | Rated Power: | | |
| Turbo Fan | P&W | JT8D-17 | 16000 LBS | | |
| - Aircraft Inspection Information | | | | | |
| Type of Last Inspection | Date of Last Inspection | Time Since Last Inspection | Airframe Total Time | | |
| Continuous Airworthiness | | 2275 Hours | 43210 Hours | | |
| - Emergency Locator Transmitter (ELT) Information | | | | | |
| ELT Installed? | ELT Operated? | ELT Aided in Locating Accident Site? | | | |
| Owner/Operator Information | | | | | |
| Registered Aircraft Owner | | Street Address | | | |
| FIRST SECURITY BANK UTAH | | 79 SOUTH MAIN STREET | | | |
| | | City | State | Zip Code | |
| | | SALT LAKE CITY | UT | 84111 | |
| Operator of Aircraft | | Street Address | | | |
| HAWAIIAN AIRLINES, INC. | | P.O. BOX 30008 | | | |
| | | City | State | Zip Code | |
| | | HONOLULU | HI | 96820 | |
| Operator Does Business As: HAWAIIAN AIRLINES, INC. | | | Operator Designator Code: HALA | | |
| - Type of U.S. Certificate(s) Held: | | | | | |
| Air Carrier Operating Certificate(s): Flag Carrier/Domestic | | | | | |
| Operating Certificate: | | | Operator Certificate: | | |
| Regulation Flight Conducted Under: Part 121: Air Carrier | | | | | |
| Type of Flight Operation Conducted: Scheduled; Domestic; Passenger Only | | | | | |
| FACTUAL REPORT - AVIATION | | | | | |

| | |
|--|-----------------------------|
|  <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p> | NTSB ID: LAX98IA085 |
| | Occurrence Date: 02/09/1998 |
| | Occurrence Type: Incident |

First Pilot Information

| | | | | |
|-----------------|-----------------|------------------|--------------------------|-----------|
| Name On File | City On File | State On File | Date of Birth On File | Age 43 |
|-----------------|-----------------|------------------|--------------------------|-----------|

| | | | |
|--------|---------------------|--------------------------------------|-----------------------------|
| Sex: F | Seat Occupied: Left | Principal Profession: Civilian Pilot | Certificate Number: On File |
|--------|---------------------|--------------------------------------|-----------------------------|

Certificate(s): Airline Transport; Commercial

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

Rotorcraft/Glider/LTA: Helicopter

Instrument Rating(s): Airplane; Helicopter

Instructor Rating(s): None

| | |
|---|---------------------------------|
| Type Rating/Endorsement for Accident/Incident Aircraft? Yes | Current Biennial Flight Review? |
|---|---------------------------------|

| | | |
|------------------------|--|------------------------------------|
| Medical Cert.: Class 1 | Medical Cert. Status: Valid Medical--w/ waivers/lim. | Date of Last Medical Exam: 09/1997 |
|------------------------|--|------------------------------------|

| - 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 | 13100 | | 3000 | 10000 | 3000 | 800 | | 50 | | |
| Pilot In Command(PIC) | 7000 | | 3000 | 4000 | | | | | | |
| Instructor | 2000 | | 700 | 1000 | | | | | | |
| Last 90 Days | 200 | | | 200 | | | | | | |
| Last 30 Days | 60 | | | 60 | | | | | | |
| Last 24 Hours | 5 | | | 5 | | | | | | |

| | | | |
|--------------------|----------------------------|--------------------------|-------------------|
| Seatbelt Used? Yes | Shoulder Harness Used? Yes | Toxicology Performed? No | Second Pilot? Yes |
|--------------------|----------------------------|--------------------------|-------------------|

Flight Plan/Itinerary

Type of Flight Plan Filed: VFR/IFR

| | | | | |
|---|-------|---------------------------|------------------------|------------------|
| Departure Point Same as Accident/Incident Location | State | Airport Identifier HNL | Departure Time 0947 | Time Zone HST |
|---|-------|---------------------------|------------------------|------------------|

| | | | |
|---------------------|-------------|---------------------------|--|
| Destination KONA | State HI | Airport Identifier KOA | |
|---------------------|-------------|---------------------------|--|


Type of Clearance: IFR

Type of Airspace: Class B

Weather Information

Source of Briefing:
Company; National Weather Service

Method of Briefing:

| | |
|--|-----------------------------|
|  <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p> | NTSB ID: LAX98IA085 |
| | Occurrence Date: 02/09/1998 |
| | Occurrence Type: Incident |

| | | | | | |
|-----------------------------------|-----------------------|--|---------------|---------------------------------|------------------------------|
| Weather Information | | | | | |
| WOF ID | Observation Time | Time Zone | WOF Elevation | WOF Distance From Accident Site | Direction From Accident Site |
| HNL | 0947 | HST | 13 Ft. MSL | 0 NM | 0 Deg. Mag. |
| Sky/Lowest Cloud Condition: Clear | | | 0 Ft. AGL | Condition of Light: Day | |
| Lowest Ceiling: None | | 0 Ft. AGL | | Visibility: 9 SM | Altimeter: 30.00 "Hg |
| Temperature: 23 °C | Dew Point: 16 °C | Wind Direction: Variable | | Density Altitude: Ft. | |
| Wind Speed: 3 | 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: Minor | 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 | | | | | |
| Cabin Attendants | | | | 3 | 3 |
| Other Crew | | | | | |
| Passengers | | | | 139 | 139 |
| - TOTAL ABOARD - | | | | 144 | 144 |
| Other Ground | 0 | 0 | 0 | | 0 |
| - GRAND TOTAL - | 0 | 0 | 0 | 144 | 144 |

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: LAX98IA085

Occurrence Date: 02/09/1998

Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

ROBERT R. CRISPIN

Additional Persons Participating in This Accident/Incident Investigation:

HERBERT A YOUNG
WP-HNL-FSDO
HONOLULU, HI 96819

H N DAVIES, JR.
HAWAIIAN AIRLINES
HONOLULU, HI 96820