



National Transportation Safety Board Aviation Accident Final Report

Location:	Manassas, VA	Accident Number:	NYC06FA138
Date & Time:	06/03/2006, 0719 EDT	Registration:	N328PD
Aircraft:	Dornier DO-328-300	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor, 7 None

Flight Conducted Under: Part 91: General Aviation - Positioning

Analysis

Prior to departure on the maintenance repositioning flight, the captain discussed with the first officer an uneven fuel balance that they could "fix" once airborne, and a 25,000 feet msl restriction because of an inoperative air conditioning/pressurization pack. The captain also commented about the right pack "misbehaving", and a bleed valve failure warning. The captain also commented about aborting below 80 knots for everything, except for the bleed shutoff valve. During the takeoff roll, a single chime was heard, and the first officer reported a bleed valve fail message. The captain responded, "ignore it." Another chime was heard, and the first officer reported "lateral mode fail, pusher fail." The captain asked about airspeed and was advised of an "indicated airspeed miscompare." The captain initiated the aborted takeoff approximately 13 seconds after the second chime was heard. The crew was unable to stop the airplane, and it went off the end of the runway, and impacted obstructions and terrain. According to the flight data recorder, peak groundspeed was 152 knots and the time the aborted takeoff was initiated, and indicated airspeed was 78.5 knots. The captain and the airplane owner's director of maintenance were aware of several mechanical discrepancies prior to the flight, and the captain had advised the first officer that the flight was for "routine maintenance," but that the airplane was airworthy. Prior to the flight the first officer found "reddish clay" in one of the pitot tubes and removed it. A mechanic and the captain examined the pitot tube, and determined the tube was not obstructed. The captain's pitot tube was later found to be partially blocked with an insect nest. A postaccident examination of the airplane and aircraft maintenance log revealed that no discrepancies were entered in the log, and no placards or "inoperative" decals were affixed in the cockpit.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The partially blocked pitot system, which resulted in an inaccurate airspeed indicator display, and an overrun during an aborted takeoff. A factor associated with the accident was the pilot-in-command's delayed decision to abort the takeoff.

Findings

Occurrence #1: OVERRUN

Phase of Operation: TAKEOFF - ABORTED

Findings

1. (C) FLIGHT/NAV INSTRUMENTS,AIRSPEED INDICATOR - BLOCKED(PARTIAL)
2. FLIGHT/NAV INSTRUMENTS,AIRSPEED INDICATOR - INACCURATE
3. (F) ABORTED TAKEOFF - DELAYED - PILOT IN COMMAND

Occurrence #2: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER

Phase of Operation: TAKEOFF - ABORTED

Findings

4. TERRAIN CONDITION - ROADWAY/HIGHWAY

Factual Information

HISTORY OF FLIGHT

On June 3, 2006, at 0719 eastern daylight time, a Dornier, DO-328-300, N328PD, operated by East Coast Flight Services, Inc. was substantially damaged during a runway overrun following an aborted takeoff at the Manassas Regional Airport (HEF), Manassas, Virginia. The captain, a certificated airline transport pilot, and flight attendant, along with the five passengers were not injured. The first officer, a certificated commercial pilot, received minor injuries. Visual meteorological conditions prevailed, and an instrument flight rules (IFR) flight plan was filed for the flight, destined for Myrtle Beach International Airport (MYR), Myrtle Beach, South Carolina. The maintenance repositioning flight was conducted under 14 CFR Part 91.

According to data from the cockpit voice recorder and flight data recorder, after obtaining an IFR clearance to MYR, the captain initiated a discussion with the first officer about an uneven fuel balance that they could "fix" once airborne. Approximately two and a half minutes later, the captain advised the first officer they could only fly as high as 25,000 feet msl because only one air-conditioning/pressurization pack was operational.

After starting engines and taxiing to runway 34R for departure; the captain began to comment about the right pack "misbehaving" and a bleed valve failure warning. It was then decided to leave the pack off for takeoff and "try it again" in the air.

During the captain's takeoff briefing he commented about aborting the takeoff below 80 knots indicated airspeed for everything, "except for this bleed shutoff valve."

After advancing the thrust levers for takeoff, a sound of a single chime was heard, and two seconds later the first officer reported a bleed valve fail message. The captain responded, "ignore it." Moments later another chime was heard and the first officer reported "lateral mode fail, pusher fail." The captain then asked the first officer about the airplane's indicated airspeed, to which he replied "indicated airspeed miscompare."

The captain then stated, "I'm aborting" and "we have no airspeed." Six seconds later the sound of impact was heard.

The peak-recorded groundspeed was 152 knots and at that time, indicated airspeed was 78.5 knots.

PERSONNEL INFORMATION

The captain held an airline transport pilot certificate with multiple ratings including airplane multi-engine land, and a type rating for the DO-328 Jet. According to records provided by East Coast Flight Services Inc. (ECFS), the captain had a total flight time of 15,615 hours, with 4,506 hours in multi-engine airplanes and 2,523 hours in the DO-328 Jet. His most recent FAA first-class medical certificate was issued on May 9, 2006.

The first officer held a commercial pilot certificate with ratings for airplane single and multi-engine land. According to records provided by ECFS, the first officer had a total flight time of 819 hours, with 250 hours in multi-engine airplanes and 141 hours in the DO-328 Jet. His most recent FAA first-class medical certificate was issued on January 19, 2006.

AIRCRAFT INFORMATION

The airplane's most recent continuous airworthiness inspection was completed on May 10,

2006, and at that time it had accumulated 2,830 total hours of operation.

According to a Federal Aviation Administration (FAA) inspector, the airplane was added to ECFS's FAA approved operations specifications in April, 2006, and could be operated on Part 135 charter flights.

During interviews with the flight crew it was determined that the captain was aware of mechanical discrepancies involving the airplane. He subsequently advised the first officer prior to the flight, that the flight was for "routine maintenance," and that maintenance personnel had deemed the airplane as airworthy. He also briefed him on items that "he should not be concerned with." These included, three amber crew alerting system (CAS) messages and he believed one bleed air message.

Prior to the accident flight, the first officer also found "reddish clay" in the opening of one of the pitot tubes. He then called a mechanic and the captain over to show them what he had found. After examining the pitot tube, the captain and mechanic were satisfied the tube was not obstructed.

A postaccident examination of the airplanes maintenance logbook by an FAA inspector revealed no record of any discrepancies, nor were any placards or "inoperative" decals affixed to any of the instrument panels to denote an inoperative component or system.

METEOROLOGICAL INFORMATION

The reported weather at HEF, at 1253, included: wind from 290 degrees at 13 knots, visibility 5 miles, scattered clouds at 600 feet, broken clouds at 3,300 feet, temperature 70 degrees Fahrenheit, dew point 66 degrees Fahrenheit, and an altimeter setting of 29.72 inches of mercury.

AIRPORT INFORMATION

HEF had two runways, oriented in a 34/16 configuration. Runway 34R was asphalt, grooved, and in fair condition. The total length of the runway was 5,700 feet, and its width was 100 feet.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest on a public roadway after overrunning the departure end of runway 34R, striking a runway end identifier light, portions of the approach light system, the airport security fence, and the paved shoulder of the roadway.

Examination of the runway and surrounding terrain revealed visible skid marks beginning 3,120 feet prior to the departure end. Ruts corresponding to the main and nose wheel landing gears also existed, which continued from the runway pavement to the shoulder of the roadway.

Examination of the wreckage revealed impact damage to both main landing gear, the nose landing gear, landing gear wells, cabin flooring, pressure vessel, bottom of the fuselage, and radome.

TESTS AND RESEARCH

It was revealed during interviews, that PAC Jet Acquisitions II LLC's airplane was not hangared when parked, and that covers for the pitot tubes on the accident airplane were not available.

Examination of the pitot static system revealed that the captain's airspeed indications were

lagging behind the first officer's airspeed indications and that the captains pitot tube was partially blocked by the remains of an insect nest.

Data was downloaded from the airplane's air data computers, integrated avionics computers, and data acquisition units. The downloads revealed multiple ground faults, air faults, and faults on startup recorded on the day of the accident, including a sensor miscompare fault for the air data computer system, and a CAS miscompare message.

Further research revealed that these faults existed during operations in the months of April, May, and June of 2006, both prior to and following the airplane's last continuous airworthiness inspection. During this time period the airplane had been operated by the captain and first officer of the accident flight, as well as other flight crews, with passengers on board. However, the accident flight was the first officer's first flight in the accident airplane.

ADDITIONAL INFORMATION

According to PAC's website, they were established in 2002 as an aircraft charter broker and management company. They brokered flights, but did not hold a Part 119 or 135 operating certificate or any economic authority from the Department of Transportation's Office of the Secretary. They employed a director of maintenance who maintained the company's maintenance records, coordinated maintenance on the company's airplanes, and assisted with the documentation for PAC's proposed Part 135 certification. They also employed a director of operations/chief pilot, and a chief operating officer who also acted as a captain.

According to documentation provided by the FAA, a representative of PAC arranged for the passengers to be onboard the maintenance repositioning flight.

This report was modified on May 4, 2007, and on May 23, 2007.

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial; Private	Age:	62, Male
Airplane Rating(s):	Multi-engine Land; Multi-engine Sea; Single-engine Land; Single-engine Sea	Seat Occupied:	Left
Other Aircraft Rating(s):	Glider	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last Medical Exam:	05/01/2006
Occupational Pilot:		Last Flight Review or Equivalent:	04/01/2006
Flight Time:	15615 hours (Total, all aircraft), 2523 hours (Total, this make and model), 14807 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 49 hours (Last 30 days, all aircraft)		

Co-Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	52, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last Medical Exam:	01/01/2006
Occupational Pilot:		Last Flight Review or Equivalent:	05/01/2006
Flight Time:	819 hours (Total, all aircraft), 141 hours (Total, this make and model), 462 hours (Pilot In Command, all aircraft), 41 hours (Last 90 days, all aircraft), 33 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Dornier	Registration:	N328PD
Model/Series:	DO-328-300	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	3105
Landing Gear Type:	Retractable - Tricycle	Seats:	34
Date/Type of Last Inspection:	05/01/2006, Continuous Airworthiness	Certified Max Gross Wt.:	33510 lbs
Time Since Last Inspection:		Engines:	2 Turbo Fan
Airframe Total Time:	2830 Hours	Engine Manufacturer:	Pratt & Whitney Canada
ELT:	Installed, not activated	Engine Model/Series:	PW306B
Registered Owner:	PAC Jet Acquisitions II LLC	Rated Power:	6050 lbs
Operator:	East Coast Flight Services, Inc.	Air Carrier Operating Certificate:	On-demand Air Taxi (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	HEF, 192 ft msl	Observation Time:	0736 EDT
Distance from Accident Site:		Direction from Accident Site:	
Lowest Cloud Condition:	Scattered / 600 ft agl	Temperature/Dew Point:	21 °C / 19 °C
Lowest Ceiling:	Broken / 3300 ft agl	Visibility	5 Miles
Wind Speed/Gusts, Direction:	13 knots, 290°	Visibility (RVR):	
Altimeter Setting:	29.72 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Manassas, VA (HEF)	Type of Flight Plan Filed:	IFR
Destination:	Myrtle Beach, SC (MYR)	Type of Clearance:	IFR
Departure Time:	0719 EDT	Type of Airspace:	

Airport Information

Airport:	Manassas Regional Airport (HEF)	Runway Surface Type:	Asphalt
Airport Elevation:	192 ft	Runway Surface Condition:	Dry
Runway Used:	34R	IFR Approach:	None
Runway Length/Width:	5700 ft / 100 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Minor, 2 None	Aircraft Damage:	Substantial
Passenger Injuries:	5 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor, 7 None	Latitude, Longitude:	38.731389, -77.522500

Administrative Information

Investigator In Charge (IIC):	Todd G Gunther	Adopted Date:	05/29/2007
Additional Participating Persons:	Roger C Roberts; FAA FSDO-27; Dulles, VA Paul Gipson; Honeywell Inc.; Phoenix, AZ Stefan Krause; GCT Design Organisation GMBH; Germany, Cary Ambler; East Coast Flight Services Inc.; Easton, MD		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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