



Aviation Investigation Final Report

Location:	Huntington, West Virginia	Accident Number:	ERA12LA147
Date & Time:	January 16, 2012, 07:00 Local	Registration:	N839EX
Aircraft:	Boeing DHC-8-102	Aircraft Damage:	Substantial
Defining Event:	Ground handling event	Injuries:	36 None
Flight Conducted Under:	Part 121: Air carrier - Scheduled		

Analysis

According to the captain and the first officer, they were instructed to taxi the airplane to an unspecified deice area to remove frost from the airframe. As they taxied, a ground crewmember stood by the wing to ensure the airplane's clearance from another airline's equipment and signaled thumbs up to the flight crew to indicate when they were clear of the equipment. After taxiing a short distance, the flight crew stopped and awaited further instructions from a ramp agent on the radio for positioning the airplane. Unknown to the flight crew, the deicing team misunderstood the thumbs-up signal to mean that deicing could begin. Consequently, they moved into a position behind the airplane's left wing and in front of the left horizontal tail. The ramp agent working the radio could not see the airplane from the radio location and, believing it was still at the gate, instructed the flight crew to taxi 50 feet and stop for deicing. The flight crew initiated taxiing and almost immediately felt a bump, colliding with the boom arm of the deice truck. They then stopped the airplane. The deice truck was not equipped for radio communication; therefore, the team's movement and position could not be coordinated with the other ground personnel or flight crew.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The inadequate communication among ground crew personnel, which resulted in the airplane's collision with a deice truck.

Findings

Environmental issues	Visual communication - Contributed to outcome
Personnel issues	Incorrect action performance - Ground crew

Factual Information

History of Flight

Taxi	Ground handling event (Defining event)
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On January 16, 2012, about 0700 eastern standard time, a Boeing DHC-8-102, N839EX, registered to US Airways Express and operated by Piedmont Airlines as flight 4117, sustained substantial damage to the left horizontal stabilizer and elevator when it collided with a deicing truck while taxiing at Tri-State Airport (HTS), Huntington, West Virginia. The scheduled domestic passenger flight was conducted under the provisions of 14 Code of Federal Regulations Part 121. Visual meteorological conditions prevailed and an instrument flight rules flight plan had been filed. The 2 pilots, 1 flight attendant and 33 passengers were not injured. The flight was originating from HTS and was destined for Charlotte/Douglas International Airport, Charlotte, North Carolina.

According to the Director of Safety for US Airways, HTS had recently changed from deicing on the gate to off-gate deicing. Prior to the airplane leaving the gate, the Captain spoke with the ramp agent, telling him that he would like to taxi out with one engine, and leave the engine in feather while the airport personnel (vendor) conducted the deicing. The ramp agent (1) then walked to the deice vehicle and conveyed the Captain's request, to which the vendor personnel agreed. The ramp agent (1) then went back to the airplane to confirm with the Captain that his plan was acceptable with the vendor. The ramp agent then said that he told the Captain to taxi out in front of Gate 2, but the Captain said he was told to taxi out in a non-specific manner.

After the Captain started the #1 engine, an agent pulled the wheel chocks and then went inside to station operations to man the radio, while another agent marshalled the aircraft out of the Gate 1 parking area. Because of the proximity of another airline's piece of equipment, the agent doing the marshalling then stood by the wing to ensure sufficient clearance, and gave thumbs up to the flight crew to signal that they were clear of the equipment.

After the airplane taxied out and was positioned near gate 2, the Captain stopped the airplane and asked the First Officer (FO) to call station operations and clarify where they were to go for the deicing. The FO spoke with the ramp agent who was working the radio, but the agent could not see the airplane and did not realize the aircraft had left the gate. Assuming that the aircraft was still at the gate, the agent told the crew to taxi 50 feet or so and stop.

Without the flight crew's knowledge, the vendor's deicing team misunderstood the agent's thumbs up signal as the signal that deicing could begin. Consequently, the deicing team moved into a position behind the left wing and in front of the left horizontal tail when the aircraft first stopped, and started spraying the rear of the aircraft. Having received guidance from station operations to move 50 feet, the flight crew initiated taxiing and almost

immediately felt a bump, then stopped. After seeing the aircraft start to move, the bucket operator yelled to the driver to "back up" and tried to lower the boom, but the aircraft tail had already struck the boom arm.

Pilot Information

Certificate:	Airline transport	Age:	56, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	August 9, 2011
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	20800 hours (Total, all aircraft), 19500 hours (Total, this make and model), 210 hours (Last 90 days, all aircraft)		

Co-pilot Information

Certificate:	Commercial	Age:	40, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
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 Without waivers/limitations	Last FAA Medical Exam:	February 11, 2011
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	8000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Boeing	Registration:	N839EX
Model/Series:	DHC-8-102	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Transport	Serial Number:	226
Landing Gear Type:	Retractable - Tricycle	Seats:	36
Date/Type of Last Inspection:	December 11, 2011 Continuous airworthiness	Certified Max Gross Wt.:	32400 lbs
Time Since Last Inspection:	291 Hrs	Engines:	2 Turbo prop
Airframe Total Time:	40609 Hrs at time of accident	Engine Manufacturer:	P&W CANADA
ELT:	C91A installed, not activated	Engine Model/Series:	PW120
Registered Owner:	US AIRWAYS INC	Rated Power:	1800 Horsepower
Operator:	Piedmont Airlines Incorporated	Operating Certificate(s) Held:	Commuter air carrier (135)
Operator Does Business As:	Piedmont Airlines Incorporated	Operator Designator Code:	HNAA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Dawn
Observation Facility, Elevation:	HTS,828 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	06:51 Local	Direction from Accident Site:	0°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	180°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.28 inches Hg	Temperature/Dew Point:	4°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Huntington, WV (HTS)	Type of Flight Plan Filed:	IFR
Destination:	Charlotte, NC (CLT)	Type of Clearance:	IFR
Departure Time:	07:00 Local	Type of Airspace:	

Airport Information

Airport:	Tri-State Airport HTS	Runway Surface Type:	
Airport Elevation:	828 ft msl	Runway Surface Condition:	
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	3 None	Aircraft Damage:	Substantial
Passenger Injuries:	33 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	36 None	Latitude, Longitude:	38.366943,-82.558609(est)

Administrative Information

Investigator In Charge (IIC):	Alleyne, Eric
Additional Participating Persons:	Brian E Givens; FAA/FSDO; Charleston, WV
Original Publish Date:	September 5, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=82696

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