



National Transportation Safety Board Aviation Accident Final Report

Location:	Portland, OR	Accident Number:	SEA05LA184A
Date & Time:	08/29/2005, 1409 PDT	Registration:	N855NW
Aircraft:	Airbus Industrie A330-223	Aircraft Damage:	Minor
Defining Event:		Injuries:	247 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

The Airbus was taxiing east via Taxiway B to runway 28L for departure. The Bombardier had landed, taxied to the gate area, and was stopped on the ramp located north of Taxiway B waiting to be marshaled to its parking spot. The Bombardier was sitting on a northerly heading, oriented perpendicular to Taxiway B with its tail towards the taxiway. The captain and augmenting captain of the Airbus visually checked for clearance between their left wingtip and the tail of the Bombardier and decided that there was adequate clearance. However, as the Airbus passed behind the Bombardier, the left wingtip of the Airbus struck the tail of the Bombardier. The left winglet of the Airbus was scraped, bent and cracked. The vertical stabilizer, horizontal stabilizer, both elevators, and the rudder of the Bombardier sustained structural damage.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the flight crew to maintain adequate clearance while taxiing.

Findings

Occurrence #1: COLLISION BETWEEN AIRCRAFT (OTHER THAN MIDAIR)
Phase of Operation: TAXI - TO TAKEOFF

Findings

1. (C) CLEARANCE - NOT MAINTAINED - FLIGHTCREW

Factual Information

On August 29, 2005, approximately 1409 Pacific daylight time, an Airbus A330-223, N855NW, was taxiing for takeoff when it collided with a Bombardier DHC-8-202, N363PH, that was standing with engines operating waiting to be marshaled to its parking spot on the Portland International Airport, Portland, Oregon. There were no injuries to the 3 flight crewmembers, 9 flight attendants, and 235 passengers aboard the Airbus or to the 2 flight crewmembers, 1 flight attendant, and 20 passengers aboard the Bombardier. There was minor damage to the left winglet of the Airbus and substantial damage to the tail of the Bombardier. The Airbus was operated by Northwest Airlines as flight number 5, a 14 CFR Part 121 scheduled international passenger flight from Portland to Narita Airport, Japan. The Bombardier was operated by Horizon Air as flight number 2066, a 14 CFR Part 121 scheduled domestic passenger flight from Medford, Oregon to Portland. Visual meteorological conditions prevailed, and instrument flight rules flight plans were filed for both flights.

According to information provided by FAA inspectors who responded to the scene of the accident, the Airbus was taxiing east via Taxiway B to runway 28L for departure. The Bombardier had landed, taxied to the gate area, and was stopped on the ramp located north of Taxiway B waiting to be marshaled to its parking spot. The Bombardier was sitting on a northerly heading, oriented perpendicular to Taxiway B with its tail towards the taxiway. As the Airbus passed behind the Bombardier, the left wingtip of the Airbus struck the tail of the Bombardier. The left winglet of the Airbus was scraped, bent and cracked. The vertical stabilizer, horizontal stabilizer, both elevators, and the rudder on the Bombardier sustained structural damage.

Portland Air Traffic Control Tower prepared a chronological summary of the event and a transcript of the communications on the ground control frequency. The chronology indicated that at 1403, the Bombardier contacted ground control stating they had exited the runway at Taxiway B-5 for spot 14, and the ground controller cleared them to taxi to spot 14. At 1405, the Airbus advised they were ready to taxi, and the ground controller instructed them to taxi to runway 28L. The transcript indicated that at 1406:40, the ground controller advised the Airbus to "use caution for a dash eight [Bombardier] pulled up ah on taxiway tango by bravo ahead and to your left should have wing tip clearance there." The Airbus acknowledged the transmission. At 1408:58, the unidentified transmission, "hey ah northwest are you (unintelligible)" was made. At 1412:45, the Airbus advised the ground controller that they had hit the Bombardier.

During an interview conducted by FAA inspectors, the captain of the Bombardier reported that the flight's landing and taxi in were normal. He further reported that the flight was instructed to park in spot 14, and he held on the ramp short of the spot awaiting a marshaler to direct him into the parking spot. While waiting to be marshaled, the captain heard the ground controller direct the Airbus to taxi behind his airplane. He then taxied his airplane "as far forward as possible but did not cross the access road due to the missing marshaler." The captain reported that the Bombardier was stopped when the Airbus passed behind it. Just prior to the impact, the captain attempted to contact the ground controller, but the impact pulled his hand away from the radio transmit switch. Following the event, the flight crew shut down the engines, and the passengers exited the Bombardier and walked to the terminal. There was no emergency evacuation.

According to a written statement submitted by the captain of the Airbus, the flight was cleared to taxi to the runway, and the ground controller commented that the flight should "not have a problem" getting past the Bombardier that was clear of the taxiway on the ramp. The captain reported that the tail of the Bombardier "appeared to be 20-30 feet outside the taxi line" and that he was "not comfortable" with the Bombardier's position. As the Airbus approached the Bombardier, the Bombardier "moved forward about another 20-30 feet perpendicularly away from the yellow taxiway edge line." The captain asked the augmenting captain seated in the jump seat if it looked like they would clear the Bombardier, and the augmenting captain got out of his seat and looked out the left window. The augmenting captain told the captain that it looked like he would have 10-20 feet of clearance. The captain reported that he also looked at the left wingtip and thought there was adequate clearance. According to the captain, the nose wheel of the Airbus was slightly right of the taxiway centerline when he passed behind the Bombardier. The captain felt a "shudder" and stopped the airplane. Following the event, the Airbus taxied back to the gate, and the passengers de-planed. Written statements submitted by the first officer and the augmenting captain of the Airbus collaborated the captain's statement.

When FAA inspectors reached the scene, the Airbus was parked at the gate, and the Bombardier had not been moved since the collision. FAA inspectors measured the distance between the Bombardier's nose wheel and the centerline of Taxiway B as approximately 150 feet. According to information provided by Horizon Air, the distance from the nose wheel to the tip of the Bombardier's tail was approximately 67 feet. This placed the tip of the Bombardier's tail approximately 83 feet from the centerline of Taxiway B. According to information provided by Northwest Airlines, the wingspan of the Airbus was 197 feet 10 inches. With the nose wheel of the Airbus on the centerline of the taxiway, the tip of the left wing would have been located 98 feet 10 inches left of the centerline.

Pilot Information

Certificate:	Airline Transport; Flight Engineer	Age:	52, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last Medical Exam:	06/01/2005
Occupational Pilot:		Last Flight Review or Equivalent:	06/01/2005
Flight Time:	15000 hours (Total, all aircraft), 50 hours (Total, this make and model), 202 hours (Last 90 days, all aircraft), 72 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Airline Transport; Flight Engineer	Age:	59, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Sea	Seat Occupied:	Right
Other Aircraft Rating(s):	Glider	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last Medical Exam:	04/01/2005
Occupational Pilot:		Last Flight Review or Equivalent:	03/01/2005
Flight Time:	20000 hours (Total, all aircraft), 2000 hours (Total, this make and model), 198 hours (Last 90 days, all aircraft), 65 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Other Flight Crew Information

Certificate:	Airline Transport; Flight Instructor	Age:	54, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Center
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last Medical Exam:	06/01/2005
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Airbus Industrie	Registration:	N855NW
Model/Series:	A330-223	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	0621
Landing Gear Type:	Retractable - Tricycle	Seats:	259
Date/Type of Last Inspection:	08/01/2005,	Certified Max Gross Wt.:	513000 lbs
Time Since Last Inspection:	0 Hours	Engines:	2 Turbo Fan
Airframe Total Time:	4125 Hours	Engine Manufacturer:	Pratt & Whitney
ELT:	Not installed	Engine Model/Series:	PW-4168A
Registered Owner:	Northwest Airlines	Rated Power:	
Operator:	Northwest Airlines	Air Carrier Operating Certificate:	Flag carrier (121)
Operator Does Business As:		Operator Designator Code:	NWAA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	PDX, 30 ft msl	Observation Time:	1355 PDT
Distance from Accident Site:		Direction from Accident Site:	
Lowest Cloud Condition:	Scattered / 4100 ft agl	Temperature/Dew Point:	19° C / 13° C
Lowest Ceiling:	Broken / 6500 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	7 knots, 30°	Visibility (RVR):	
Altimeter Setting:	30.04 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	Thunderstorms - Unknown Precipitation		
Departure Point:	Portland, OR (PDX)	Type of Flight Plan Filed:	IFR
Destination:	Narita (NRT)	Type of Clearance:	Unknown
Departure Time:	PDT	Type of Airspace:	Unknown

Airport Information

Airport:	Portland International (PDX)	Runway Surface Type:	
Airport Elevation:	30 ft	Runway Surface Condition:	
Runway Used:	NA	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	12 None	Aircraft Damage:	Minor
Passenger Injuries:	235 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	247 None	Latitude, Longitude:	45.588611, -122.597500

Administrative Information

Investigator In Charge (IIC):	Georgia R Struhsaker	Adopted Date:	03/28/2006
Additional Participating Persons:	Dan Seaton; FAA FSDO; Hillsboro, OR		
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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