Aviation Investigation Final Report

Location:	Baltimore, Maryland	**Incident Number:**	OPS08IA002
Date & Time:	December 2, 2007, 19:22 Local	**Registration:**	N781CA
Aircraft:	Bombardier, Inc. CRJ1	**Aircraft Damage:**	None
Defining Event:		**Injuries:**	53 None
Flight Conducted Under:	Part 121: Air carrier - Scheduled		

Analysis

On December 2, 2007, at approximately 7:21 pm Eastern Standard time, Comair flight 5412 (COM5412), a Bombardier Regional Jet (CRJ), departed runway 15R and over flew America West (AWE) flight 83, an Airbus A320, that had landed on runway 10 at Baltimore/Washington International Thurgood Marshall Airport (BWI), Baltimore, Maryland during night visual meteorological conditions.

Weather conditions were: wind calm, visibility 5 statute miles, light rain and mist, ceiling 1,000 feet broken and 3,000 feet overcast.

The tower controller had cleared AWE83 to land on runway 10 and AWE83 was approximately 6 mile on final approach when the ATC local controller cleared COM5412 for takeoff on runway 15R. COM5412 was on taxiway A about 500 feet short of runway 15R when the takeoff clearance was issued. AMASS alerted. COM5412 rotated at taxiway F and over flew AWE83, at the intersection of runways 10 and 15R. The initial report from the Federal Aviation Administration stated that COM5421 over flew AWE83 by 300 feet. AWE83 exited runway 10 at runway 22.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: The probable cause of this incident is local controller's failure of maintaining awareness of the situation and failing to provide the appropriate separation between the two aircraft operating on intersecting runways. Providing separation between aircraft is a first duty priority, in accordance with FAA Order 7110.65.

Findings

Occurrence #1: NEAR COLLISION BETWEEN AIRCRAFT
Phase of Operation: TAKEOFF - ROLL/RUN

Findings
1. (C) CONTROL TOWER - IMPROPER
2. (C) ATC CLEARANCE - IMPROPER - ATC PERSONNEL(LCL/GND/CLNC)

Factual Information

On December 2, 2007, at approximately 1922 Eastern Standard time (EST), Comair, Inc., flight 5412 (COM5412), N781CA, a Bombardier Canadair Regional Jet, departed runway 15R and over flew America West Airlines flight 83 (AWE 83), N659AW, an Airbus Industrie A-320, that had landed on runway 10, at Baltimore/Washington International Thurgood Marshall Airport (BWI), Baltimore, Maryland. Both aircraft were operating as a 14 Code of Federal Regulations Part 121 flight and both crews had filed instrument flight rules flight plans. There were no injuries to the occupants of either aircraft and neither aircraft was damaged. The incident occurred during night visual flight rules conditions.

About 1919:07, when AWE 83 was approximately six mile final for landing on runway 10, the BWI local controller cleared AWE 83 to land. The pilot of AWE 83 acknowledged the landing clearance.

About 1920:33, as evidenced by BWI radar data and Airport Movement Area Safety System (AMASS) data, AWE 83 was two and one half mile final to runway 10 when the local controller cleared COM5412 for takeoff on runway 15R. At the time of the takeoff clearance, COM5412 was situated on taxiway A about 500 feet south of the departure end of runway 15R. The pilot of COM5412 acknowledged the takeoff clearance.

About 1921:29, the ASDE (airport surface detection equipment) tower display showed the runway 10 red hold bars illuminated for AWE 83 on final approach to runway 10.

About 1921:38, the ASDE tower display showed the runway 15R red hold bars illuminated for COM5412 departing on runway 15R.

About 1921:47, the ASDE tower display alerted with both visual and aural alarms. According to the local controller, trom the back of the tower cab, an aural alert announced, "WARNING: AWE83, runways 10, 15R, converging." The AMASS also displayed numerous visual alarms such as a textual warning box, red hold bars for both runways indicating restricted runway/taxi crossing points, and purple circles around each aircraft as they approached the intersection of runways 10 and 15R. According to the local controller, he had turned his back from the runway operations to ask another controller to adjust the volume on the Domestic Events Network (DEN) line when he heard the AMASS alert. As the local controller turned back towards the local control position, he looked at the ASDE display and saw the circles around the two targets. After recognizing the situation, the local controller said, "Comair, Comair, cancel, cancel or" According to the COM5412 pilot's statement, they were at V1/Vr speed passing taxiway F on runway 15R, when the local controller attempted to instruct the crew to cancel takeoff clearance; however, it was too late to abort the takeoff. COM5412 crossed in front of AWE83, as AWE 83 proceeded through the intersection of runways 10 and 15R. According to

the FAA Runway Safety office, COM5412 missed AWE 83 by 400 feet laterally and 400 feet vertically. The FAA Runway Safety Office classified the incident as category "B" event.

About 1922:17, the local controller instructed AWE83 to turn left on runway 4/22, and advised the crew to contact ground control. The pilot of AWE 83 acknowledged.

PERSONNEL INFORMATION

The BWI ATCT local controller was appropriately certified and qualified to perform his assigned duties. He received his control tower operator's certificate in 1981 and had been working at as an air traffic controller for 26 years. Certification and experience for the captains and first officers of both aircraft was not requested.

METEOROLOGICAL INFORMATION

The BWI special weather observation for 1917EST was: Wind calm, visibility 5 statute miles, light rain and mist, sky conditions ceiling broken at 1,000 feet, overcast 3,000 feet, temperature 39, dew point 39 and altimeter 30.02 inches.

WRECKAGE AND IMPACT INFORMATION

There was no damage reported for either aircraft.

ADDITIONAL INFORMATION

Airport Information

BWI serves airline, air taxi, military, and general aviation aircraft. The annual air activity averages 307,000 flight operations per year. BWI had four runways, 10/28, 15L/33R, 15R/33L and 4/22. Runway 10/28 was 10,502 feet long and 200 feet wide with high intensity runway lights (HIRLS). The runway surface consisted of an asphalt/grooved surface in fair condition. Runway 15R/33L was 9,501 feet long and 150 feet wide with HIRLS. Runway 15R/33L surface consisted of an asphalt/grooved surface in fair condition. The airport field elevation was 146 feet msl. The tower was equipped with an AMASS.

Pilot Information

Certificate:	**Age:**	
Airplane Rating(s):	**Seat Occupied:**	
Other Aircraft Rating(s):	**Restraint Used:**	
Instrument Rating(s):	**Second Pilot Present:**	Yes
Instructor Rating(s):	**Toxicology Performed:**	No
Medical Certification:	**Last FAA Medical Exam:**	
Occupational Pilot:	**Last Flight Review or Equivalent:**	
Flight Time:		

Co-pilot Information

Certificate:	**Age:**	
Airplane Rating(s):	**Seat Occupied:**	
Other Aircraft Rating(s):	**Restraint Used:**	
Instrument Rating(s):	**Second Pilot Present:**	Yes
Instructor Rating(s):	**Toxicology Performed:**	No
Medical Certification:	**Last FAA Medical Exam:**	
Occupational Pilot:	**Last Flight Review or Equivalent:**	
Flight Time:		

Aircraft and Owner/Operator Information

Aircraft Make:	Bombardier, Inc.	**Registration:**	N781CA
Model/Series:	CRJ1	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:		**Serial Number:**	
Landing Gear Type:		**Seats:**	
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	
Airframe Total Time:		**Engine Manufacturer:**	
ELT:		**Engine Model/Series:**	
Registered Owner:		**Rated Power:**	
Operator:	COMAIR INC	**Operating Certificate(s) Held:**	Commuter air carrier (135)
Operator Does Business As:	Wholly Owned subsidary of Delta Airlines, Inc.	**Operator Designator Code:**	COMR

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	BWI,146 ft msl	**Distance from Accident Site:**	
Observation Time:	19:17 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Unknown	**Visibility**	5 miles
Lowest Ceiling:	Broken / 10 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/ None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	4°C / 4°C
Precipitation and Obscuration:	Light - None - Rain		
Departure Point:	Baltimore, MD (BWI)	**Type of Flight Plan Filed:**	IFR
Destination:	MA (BOS)	**Type of Clearance:**	IFR
Departure Time:	19:21 Local	**Type of Airspace:**	Class B

Airport Information

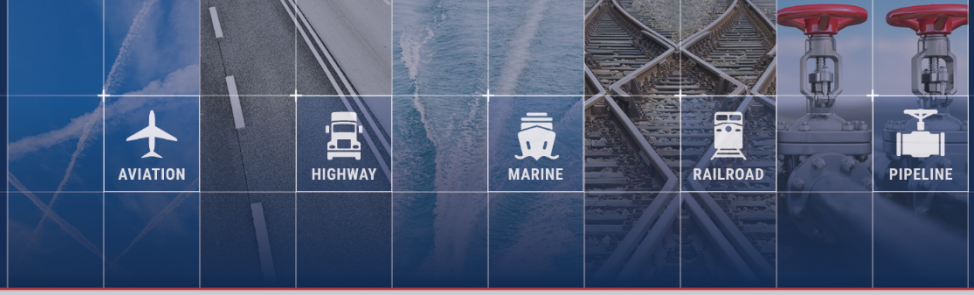
Airport:	BALTIMORE-WASHINGTON INTL BWI	**Runway Surface Type:**	Asphalt
Airport Elevation:	146 ft msl	**Runway Surface Condition:**	Wet
Runway Used:	15R	**IFR Approach:**	Unknown
Runway Length/Width:	9501 ft / 150 ft	**VFR Approach/Landing:**	Unknown

Wreckage and Impact Information

Crew Injuries:	3 None	**Aircraft Damage:**	None
Passenger Injuries:	50 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	53 None	**Latitude, Longitude:**	39.175277,-76.668334

Administrative Information

Investigator In Charge (IIC):	Hall, Hilton
Additional Participating Persons:	
Original Publish Date:	March 31, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this incident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=67195



Aviation Investigation Final Report

Location:	Baltimore, Maryland	**Incident Number:**	OPS08IA002
Date & Time:	December 2, 2007, 19:22 Local	**Registration:**	N659AW
Aircraft:	Airbus Industrie A320	**Aircraft Damage:**	None
Defining Event:		**Injuries:**	131 None
Flight Conducted Under:	Part 121: Air carrier - Scheduled		

Analysis

On December 2, 2007, at approximately 7:21 pm Eastern Standard time, Comair flight 5412 (COM5412), a Bombardier Regional Jet (CRJ), departed runway 15R and over flew America West (AWE) flight 83, an Airbus A320, that had landed on runway 10 at Baltimore/Washington International Thurgood Marshall Airport (BWI), Baltimore, Maryland during night visual meteorological conditions.

Weather conditions were: wind calm, visibility 5 statute miles, light rain and mist, ceiling 1,000 feet broken and 3,000 feet overcast.

The tower controller had cleared AWE83 to land on runway 10 and AWE83 was approximately 6 mile on final approach when the ATC local controller cleared COM5412 for takeoff on runway 15R. COM5412 was on taxiway A about 500 feet short of runway 15R when the takeoff clearance was issued. AMASS alerted. COM5412 rotated at taxiway F and over flew AWE83, at the intersection of runways 10 and 15R. The initial report from the Federal Aviation Administration stated that COM5421 over flew AWE83 by 300 feet. AWE83 exited runway 10 at runway 22.

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The National Transportation Safety Board determines the probable cause(s) of this incident to be: The probable cause of this incident is local controller's failure of maintaining awareness of the

situation and failing to provide the appropriate separation between the two aircraft operating on intersecting runways. Providing separation between aircraft is a first duty priority, in accordance with FAA Order 7110.65.

Findings

Occurrence #1: NEAR COLLISION BETWEEN AIRCRAFT
Phase of Operation: LANDING - ROLL

Findings
1. (C) CONTROL TOWER - IMPROPER
2. (C) ATC CLEARANCE - IMPROPER - ATC PERSONNEL(LCL/GND/CLNC)

Factual Information

On December 2, 2007, at approximately 1922 Eastern Standard time (EST), Comair, Inc., flight 5412 (COM5412), N781CA, a Bombardier Canadair Regional Jet, departed runway 15R and over flew America West Airlines flight 83 (AWE 83), N659AW, an Airbus Industrie A-320, that had landed on runway 10, at Baltimore/Washington International Thurgood Marshall Airport (BWI), Baltimore, Maryland. Both aircraft were operating as a 14 Code of Federal Regulations Part 121 flight and both crews had filed instrument flight rules flight plans. There were no injuries to the occupants of either aircraft and neither aircraft was damaged. The incident occurred during night visual flight rules conditions.

About 1919:07, when AWE 83 was approximately six mile final for landing on runway 10, the BWI local controller cleared AWE 83 to land. The pilot of AWE 83 acknowledged the landing clearance.

About 1920:33, as evidenced by BWI radar data and Airport Movement Area Safety System (AMASS) data, AWE 83 was two and one half mile final to runway 10 when the local controller cleared COM5412 for takeoff on runway 15R. At the time of the takeoff clearance, COM5412 was situated on taxiway A about 500 feet south of the departure end of runway 15R. The pilot of COM5412 acknowledged the takeoff clearance.

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METEOROLOGICAL INFORMATION

The BWI special weather observation for 1917EST was: Wind calm, visibility 5 statute miles, light rain and mist, sky conditions ceiling broken at 1,000 feet, overcast 3,000 feet, temperature 39, dew point 39 and altimeter 30.02 inches.

WRECKAGE AND IMPACT INFORMATION

There was no damage reported for either aircraft.

ADDITIONAL INFORMATION

Airport Information

BWI serves airline, air taxi, military, and general aviation aircraft. The annual air activity averages 307,000 flight operations per year. BWI had four runways, 10/28, 15L/33R, 15R/33L and 4/22. Runway 10/28 was 10,502 feet long and 200 feet wide with high intensity runway lights (HIRLS). The runway surface consisted of an asphalt/grooved surface in fair condition. Runway 15R/33L was 9,501 feet long and 150 feet wide with HIRLS. Runway 15R/33L surface consisted of an asphalt/grooved surface in fair condition. The airport field elevation was 146 feet msl. The tower was equipped with an AMASS.

Information

Certificate:	**Age:**
Airplane Rating(s):	**Seat Occupied:**
Other Aircraft Rating(s):	**Restraint Used:**
Instrument Rating(s):	**Second Pilot Present:**
Instructor Rating(s):	**Toxicology Performed:**
Medical Certification:	**Last FAA Medical Exam:**
Occupational Pilot:	**Last Flight Review or Equivalent:**
Flight Time:	

Aircraft and Owner/Operator Information

Aircraft Make:	Airbus Industrie	**Registration:**	N659AW
Model/Series:	A320	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:		**Serial Number:**	
Landing Gear Type:	Retractable - Tandem	**Seats:**	
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	
Airframe Total Time:		**Engine Manufacturer:**	
ELT:		**Engine Model/Series:**	
Registered Owner:		**Rated Power:**	
Operator:	AMERICA WEST AIRLINES INC	**Operating Certificate(s) Held:**	Flag carrier (121)
Operator Does Business As:	US Airways	**Operator Designator Code:**	AWXA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	BWI,146 ft msl	**Distance from Accident Site:**	
Observation Time:	19:17 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Unknown	**Visibility**	5 miles
Lowest Ceiling:	Broken / 10 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/ None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	4°C / 4°C
Precipitation and Obscuration:	Light - None - Rain		
Departure Point:	Phoenix, AZ (PHX)	**Type of Flight Plan Filed:**	IFR
Destination:	Baltimore, MD (BWI)	**Type of Clearance:**	IFR
Departure Time:	13:13 Local	**Type of Airspace:**	

Airport Information

Airport:	BALTIMORE-WASHINGTON INTL BWI	**Runway Surface Type:**	Asphalt
Airport Elevation:	146 ft msl	**Runway Surface Condition:**	Wet
Runway Used:	15R	**IFR Approach:**	Unknown
Runway Length/Width:	9501 ft / 150 ft	**VFR Approach/Landing:**	Unknown

Wreckage and Impact Information

Crew Injuries:	5 None	**Aircraft Damage:**	None
Passenger Injuries:	126 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	131 None	**Latitude, Longitude:**	39.175277,-76.668334

Administrative Information

Investigator In Charge (IIC):	Hall, Hilton
Additional Participating Persons:	
Original Publish Date:	March 31, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this incident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=67195