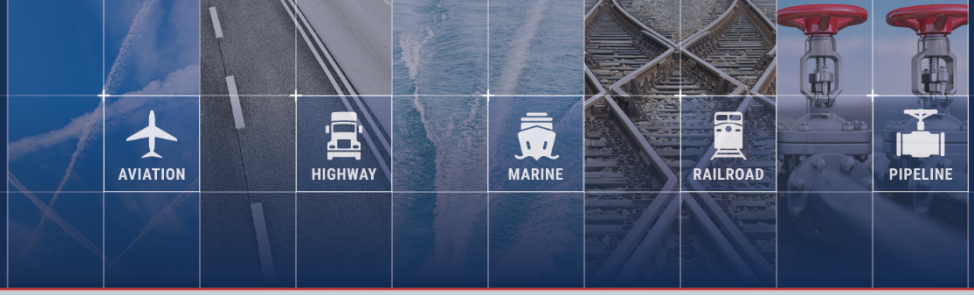

Aviation Investigation Final Report

Location:	New York, New York	**Incident Number:**	OPS08IA008
Date & Time:	July 5, 2008, 20:36 Local	**Registration:**	VP-CKW
Aircraft:	Boeing 737-300	**Aircraft Damage:**	None
Defining Event:	Air traffic event	**Injuries:**	117 None
Flight Conducted Under:	Part 129: Foreign		

Analysis

Controllers at the John F. Kennedy International Airport tower (JFK ATCT) reported a near midair collision (NMAC) involving Cayman Airways flight 792 (CAY792) and Linea Aerea Nacional de Chile flight 533 (LAN533) near the departure ends of runways 13R and 22L. CAY792 was a Boeing 737-300 that had been cleared to land on runway 22L by the Local 1 controller (LC1) following a flight from Grand Cayman Island to JFK. LAN533 was a Boeing 767-300 that had been cleared for takeoff on runway 13R by the Local 2 controller (LC2) for a flight to Santiago. According to initial reports, CAY792 was executing a missed approach to runway 22L and conflicted with LAN533 as it was departing from runway 13R. Controllers assigned diverging headings to both aircraft to resolve the conflict. According to preliminary radar data, the closest proximity of the two aircraft was slightly over 1/2 mile laterally and 200 feet vertically. At the time of the incident, the weather was VFR with 6 miles visibility and haze.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: Air traffic control tower non-compliance with FAA separation requirements for operations on non-intersecting runways where flight paths intersect, and poor judgment by the Local 2 controller in clearing the Boeing 767 for takeoff without accounting for the possibility of a go-around by the Boeing 737.

Findings

Personnel issues	Incorrect action selection - ATC personnel

Factual Information

History of Flight

Approach-IFR missed approach	Air traffic event (Defining event)

On July 5, 2008, at 8:36 p.m. eastern daylight time, controllers at the John F. Kennedy International Airport tower (JFK ATCT) reported a near midair collision (NMAC) involving Cayman Airways flight 792 (CAY792) and Linea Aerea Nacional de Chile flight 533 (LAN533) near the departure ends of runways 13R and 22L. CAY792 was a Boeing 737-300 that had been cleared to land on runway 22L by the Local 1 controller (LC1) following a flight from Grand Cayman Island to JFK. LAN533 was a Boeing 767-300 that had been cleared for takeoff on runway 13R by the Local 2 controller (LC2) for a flight to Santiago, Chile. Both aircraft were operating under the provisions fo Code of Federal Regulations Title 14 part 129 foreign-carrier passenger flights in visual conditions under instrument flight rules (IFR). There was no damage to either aircraft and no injuries were reported. Following the reported NMAC, CAY792 was vectored for another approach and landed successfully. LAN533 continued its departure and the remainder of its flight.

DETAILS OF THE INVESTIGATION

The Safety Board became aware of the possible NMAC following a press inquiry on July 7, two days after the incident. Preliminary investigation raised concerns about the air traffic procedures being used for converging runway operations at JFK. The ATC group met at JFK Air Traffic Control Tower (ATCT) on July 11, 2008, to discuss the incident with the Air Traffic Manager (ATM), review collected radio and radar data, observe the operational positions occupied by the controllers who handled CAY792 and LAN533, interview the controller-in-charge and the controller in contact with LAN533, and review other background data related to the incident. On July 12, we returned to interview the local controller handling CAY792. We then completed our work at JFK and left the facility.

During our inbrief, we asked the ATM to explain what runway separation requirements existed between runways 13R and 22L. He responded that the runways were operated independently when visual separation could be applied, but that there were local provisions for ensuring that radar separation was maintained between traffic using those two runways when weather conditions precluded application of visual separation.

History of Flight

At the time of the reported NMAC, JFK ATCT was using runways 13L and 22R for arrivals, and runway 13R for departures. This is a normal configuration that is addressed in the JFK ATCT Standard Operating Procedures (SOP).

LAN533 had been taxied to runway 13R for takeoff, and was cleared into position and hold by the LC2 controller at 2034:15. LAN533 was cleared for takeoff at 2034:54. The flight's initial IFR clearance was to follow the Kennedy 1 departure, which is a vector procedure that directs pilots to "climb via assigned heading, maintain 5,000." According to JFK management, LAN533 had been issued departure heading 170 as part of the pre-departure clearance delivery process.

At 8:34:50, CAY792 contacted the LC1 controller, reporting that they were on the VOR 22 approach passing RUSHY, which is 5 miles from the airport. The LC1 controller provided a wind check and cleared CAY792 to land on runway 22L.

At 8:35:47 and 8:35:52, the flight crew transmitted their callsign, with no further information. At 8:36:00, the LC1 controller transmitted, "Cayman 792 know what I want you to make a right turn, make a right turn heading one one, uh, all right Cayman 792 just maintain 1,000 please." At 8:36:12 the controller said, "I need a left turn, a quick left turn, a left turn heading 090 now, traffic on departure roll." The flight crew responded, "Left 090, roger." At 8:36:25, the crew asked the LC1 controller to verify the heading. The controller cleared CAY792 to climb to 2,000 feet, and reissued heading 090.

At 8:36:55, the controller changed the altitude clearance, instructing CAY792 to maintain 1,000 feet. The flight crew acknowledged. At 8:37:35, the LC1 controller recleared CAY792 to maintain 2,000 feet, and the crew acknowledged. At 8:37:48, CAY792 was instructed to change frequency to 125.7 (New York Terminal Radar Approach Control [TRACON]). At 8:38, the TRACON radar controller asked CAY792 for the reason for the go-around, and the crew responded that they were "a bit high." The controller vectored CAY792 for another approach, and the aircraft successfully landed on the second attempt.

2. Radar Data

Radar data for this incident was obtained from the ASR-9 radar system located on JFK airport. According to the recorded radar targets, the minimum observed lateral and vertical distance between the two aircraft was 0.57 nautical mile (nm) and 200 feet as they turned to their assigned headings. The aircraft then diverged. CAY792 continued eastbound at 1,000 feet until approximately 3 miles from the airport, when the controller cleared the aircraft to 2,000 feet.

During the period that CAY792 was instructed to maintain 1,000 feet, the aircraft entered an area where the minimum vectoring altitude is 1,400 feet. This resulted in less-than-standard terrain and obstacle separation, and JFK reported the event as an operational error on July 9, 2008. Because the 1,000 foot altitude was contained in the facility SOP for go-arounds, the error was attributed to facility procedures rather than controller performance.

3. Additional Event

On July 11, 2008 at 1:21 pm, while the Safety Board investigation of the July 5 incident was in progress, a similar event occurred involving Delta Airlines flight 123 (DAL123) and Comair flight 1520 (COM1520). DAL123 was on approach to runway 22L, and COM1250 was departing from runway 13R. DAL123 was instructed to contact JFK tower by the N90 arrival radar controller, but the crew misunderstood the frequency. As a result, the pilot first contacted the tower when the aircraft was about three miles from the runway. The LC1 controller cleared DAL123 to land. When the flight was about 1.5 miles from the runway, the pilot reported that he was going around. The LC1 controller directed a left turn and climb similar to the maneuver executed by CAY792, and the LC2 controller instructed COM1250 to turn to the south. The closest point of approach occurred at 1:21:28 UTC, when the aircraft were separated by 0.44 nm laterally and 800 feet vertically.

Following the second incident, the Director of the Eastern Terminal Service Area directed that the use of converging operations at JFK be terminated pending a procedural review and submission of a plan to conduct such operations in compliance with existing ATC directives, in particular paragraph 3-10-4 of FAA Order 7110.65, which states:

3-10-4. INTERSECTING RUNWAY SEPARATION Issue traffic information to each aircraft operating on intersecting runways.

a. Separate an arriving aircraft using one runway from another aircraft using an intersecting runway or a nonintersecting runway when the flight paths intersect by ensuring that the arriving aircraft does not cross the landing threshold or flight path of the other aircraft until one of the following conditions exists:

1. The preceding aircraft has departed and passed the intersection/flight path or is airborne and turning to avert any conflict.

2. A preceding arriving aircraft is clear of the landing runway, completed landing roll and will hold short of the intersection/flight path, or has passed the intersection/flight path.

NOTE-
When visual separation is being applied by the tower, appropriate control instructions and traffic advisories must be issued to ensure go around or missed approaches avert any conflict with the flight path of traffic on the other runway.

According to the FAA, a near midair collision is defined as an incident associated with the operation of an aircraft in which a possibility of collision occurs as a result of proximity of less than 500 feet to another aircraft [that is, 500 feet absolute distance], or a report is received from a pilot or a flight crew member stating that a collision hazard existed between two or more aircraft. Neither of the two incidents described in this report met the proximity criteria, and the flight crews did not submit NMAC reports.

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:	Boeing	**Registration:**	VP-CKW
Model/Series:	737-300	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Transport	**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:	CAYMAN AIRWAYS LTD	**Operating Certificate(s) Held:**	Foreign air carrier (129)
Operator Does Business As:		**Operator Designator Code:**	CAYF

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	
Observation Facility, Elevation:	JFK	**Distance from Accident Site:**	
Observation Time:	20:20 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 800 ft AGL	**Visibility**	6 miles
Lowest Ceiling:	Broken / 12000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	22°C / 19°C
Precipitation and Obscuration:			
Departure Point:	Georgetown (MWCR)	**Type of Flight Plan Filed:**	IFR
Destination:	New York, NY (KJFK)	**Type of Clearance:**	IFR
Departure Time:		**Type of Airspace:**	Class B

Airport Information

Airport:	John F. Kennedy Intl KJFK	**Runway Surface Type:**	
Airport Elevation:	13 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	VOR
Runway Length/Width:		**VFR Approach/Landing:**	Go around

Wreckage and Impact Information

Crew Injuries:	5 None	**Aircraft Damage:**	None
Passenger Injuries:	112 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	117 None	**Latitude, Longitude:**	40.750305,-73.999481(est)

Administrative Information

Investigator In Charge (IIC):	Dunham, Scott
Additional Participating Persons:	
Original Publish Date:	August 28, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=68382

Aviation Investigation Final Report

Location:	New York, New York	**Incident Number:**	OPS08IA008
Date & Time:	July 5, 2008, 20:36 Local	**Registration:**	CC-CXD
Aircraft:	Boeing 767-300	**Aircraft Damage:**	None
Defining Event:	Air traffic event	**Injuries:**	168 None
Flight Conducted Under:	Part 129: Foreign		

Analysis

On July 5, 2008, at 8:36 pm eastern daylight time, an incident reported by controllers as a near midair collision occurred at John F. Kennedy International Airport (JFK), New York, New York involving Cayman Airways flight 792 (CAY792), a Boeing 737-300, and Linea Aerea Nacional de Chile flight 533 (LAN533), a Boeing 767-300. According to initial reports, CAY792 was executing a missed approach to runway 22L and conflicted with LAN533 as it was departing from runway 13R. Controllers assigned diverging headings to both aircraft to resolve the conflict. According to preliminary radar data, the closest proximity of the two aircraft was slightly over 1/2 mile laterally and 200 feet vertically. At the time of the incident, the weather was VFR with 6 miles visibility and haze.

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 was JFK air traffic control tower non-compliance with FAA separation requirements for operations on non-intersecting runways where flight paths intersect, and poor judgment by the LC2 controller in clearing LAN533 for takeoff without accounting for the possibility of a go-around by CAY792.

Findings

Personnel issues	Incorrect action selection - ATC personnel

Factual Information

History of Flight

Takeoff	Air traffic event

On July 5, 2008, at 8:36 p.m. eastern daylight time, controllers at the John F. Kennedy International Airport tower (JFK ATCT) reported a near midair collision (NMAC) involving Cayman Airways flight 792 (CAY792) and Linea Aerea Nacional de Chile flight 533 (LAN533) near the departure ends of runways 13R and 22L. CAY792 was a Boeing 737-300 that had been cleared to land on runway 22L by the Local 1 controller (LC1) following a flight from Grand Cayman Island to JFK. LAN533 was a Boeing 767-300 that had been cleared for takeoff on runway 13R by the Local 2 controller (LC2) for a flight to Santiago, Chile. Both aircraft were operating under the provisions fo Code of Federal Regulations Title 14 part 129 foreign-carrier passenger flights in visual conditions under instrument flight rules (IFR). There was no damage to either aircraft and no injuries were reported. Following the reported NMAC, CAY792 was vectored for another approach and landed successfully. LAN533 continued its departure and the remainder of its flight.

DETAILS OF THE INVESTIGATION

The Safety Board became aware of the possible NMAC following a press inquiry on July 7, two days after the incident. Preliminary investigation raised concerns about the air traffic procedures being used for converging runway operations at JFK. The ATC group met at JFK Air Traffic Control Tower (ATCT) on July 11, 2008, to discuss the incident with the Air Traffic Manager (ATM), review collected radio and radar data, observe the operational positions occupied by the controllers who handled CAY792 and LAN533, interview the controller-in-charge and the controller in contact with LAN533, and review other background data related to the incident. On July 12, we returned to interview the local controller handling CAY792. We then completed our work at JFK and left the facility.

During our inbrief, we asked the ATM to explain what runway separation requirements existed between runways 13R and 22L. He responded that the runways were operated independently when visual separation could be applied, but that there were local provisions for ensuring that radar separation was maintained between traffic using those two runways when weather conditions precluded application of visual separation.

History of Flight

At the time of the reported NMAC, JFK ATCT was using runways 13L and 22R for arrivals, and runway 13R for departures. This is a normal configuration that is addressed in the JFK ATCT Standard Operating Procedures (SOP).

LAN533 had been taxied to runway 13R for takeoff, and was cleared into position and hold by the LC2 controller at 2034:15. LAN533 was cleared for takeoff at 2034:54. The flight's initial IFR clearance was to follow the Kennedy 1 departure, which is a vector procedure that directs pilots to "climb via assigned heading, maintain 5,000." According to JFK management, LAN533 had been issued departure heading 170 as part of the pre-departure clearance delivery process.

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At 8:36:55, the controller changed the altitude clearance, instructing CAY792 to maintain 1,000 feet. The flight crew acknowledged. At 8:37:35, the LC1 controller recleared CAY792 to maintain 2,000 feet, and the crew acknowledged. At 8:37:48, CAY792 was instructed to change frequency to 125.7 (New York Terminal Radar Approach Control [TRACON]). At 8:38, the TRACON radar controller asked CAY792 for the reason for the go-around, and the crew responded that they were "a bit high." The controller vectored CAY792 for another approach, and the aircraft successfully landed on the second attempt.

2. Radar Data

Radar data for this incident was obtained from the ASR-9 radar system located on JFK airport. According to the recorded radar targets, the minimum observed lateral and vertical distance between the two aircraft was 0.57 nautical mile (nm) and 200 feet as they turned to their assigned headings. The aircraft then diverged. CAY792 continued eastbound at 1,000 feet until approximately 3 miles from the airport, when the controller cleared the aircraft to 2,000 feet.

During the period that CAY792 was instructed to maintain 1,000 feet, the aircraft entered an area where the minimum vectoring altitude is 1,400 feet. This resulted in less-than-standard terrain and obstacle separation, and JFK reported the event as an operational error on July 9, 2008. Because the 1,000 foot altitude was contained in the facility SOP for go-arounds, the error was attributed to facility procedures rather than controller performance.

3. Additional Event

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Following the second incident, the Director of the Eastern Terminal Service Area directed that the use of converging operations at JFK be terminated pending a procedural review and submission of a plan to conduct such operations in compliance with existing ATC directives, in particular paragraph 3-10-4 of FAA Order 7110.65, which states:

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2. A preceding arriving aircraft is clear of the landing runway, completed landing roll and will hold short of the intersection/flight path, or has passed the intersection/flight path.

NOTE-
When visual separation is being applied by the tower, appropriate control instructions and traffic advisories must be issued to ensure go around or missed approaches avert any conflict with the flight path of traffic on the other runway.

According to the FAA, a near midair collision is defined as an incident associated with the operation of an aircraft in which a possibility of collision occurs as a result of proximity of less than 500 feet to another aircraft [that is, 500 feet absolute distance], or a report is received from a pilot or a flight crew member stating that a collision hazard existed between two or more aircraft. Neither of the two incidents described in this report met the proximity criteria, and the flight crews did not submit NMAC reports.

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:	Boeing	**Registration:**	CC-CXD
Model/Series:	767-300	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Transport	**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:	LAN Chile	**Operating Certificate(s) Held:**	Foreign air carrier (129)
Operator Does Business As:		**Operator Designator Code:**	LANF

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	
Observation Facility, Elevation:	JFK	**Distance from Accident Site:**	
Observation Time:	20:20 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 800 ft AGL	**Visibility**	6 miles
Lowest Ceiling:	Broken / 12000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	22°C / 19°C
Precipitation and Obscuration:			
Departure Point:	New York, NY (KJFK)	**Type of Flight Plan Filed:**	IFR
Destination:	(SCEL)	**Type of Clearance:**	IFR
Departure Time:		**Type of Airspace:**	Class B

Airport Information

Airport:	John F. Kennedy Intl KJFK	**Runway Surface Type:**	
Airport Elevation:	13 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	VOR
Runway Length/Width:		**VFR Approach/Landing:**	Go around

Wreckage and Impact Information

Crew Injuries:	12 None	**Aircraft Damage:**	None
Passenger Injuries:	156 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	168 None	**Latitude, Longitude:**	40.750305,-73.999481(est)

Administrative Information

Investigator In Charge (IIC):	Dunham, Scott
Additional Participating Persons:	
Original Publish Date:	August 28, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=68382