
Ground collision between two Boeing 777s, October 7, 2003

Micro-summary: This Boeing 777 collided with another Boeing 777 while taxiing.


Event Date: 2003-10-07 at 1157 PDT

Investigative Body: National Transportation Safety Board (NTSB), USA

Investigative Body's Web Site: <http://www.nts.gov/>

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		NTSB ID: LAX04LA007A		Aircraft Registration Number: N222UA	
		Occurrence Date: 10/07/2003		Most Critical Injury: None	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place San Francisco		State CA	Zip Code 94066	Local Time 1157	Time Zone PDT
Airport Proximity: On Airport		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Boeing		Model/Series 777-22B		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
1.1 HISTORY OF FLIGHT					
<p>On October 7, 2003, at 1157 Pacific daylight time, a Boeing 777-281, JA709A, operated as flight NH007 by All Nippon Airways (ANA), collided on the ground with a Boeing 777-22B, N222UA, operated by United Airlines (UAL) as flight UA809, at San Francisco International Airport, San Francisco, California. Both airplanes were substantially damaged. Flight UA809 was operating under the provisions of 14 CFR Part 121, and NH007 was operating under the provisions of 14 CFR Part 129. Flight NH007 was taxing for departure on a nonstop international flight to Narita International Airport, Tokyo, Japan, while UA809 was being pushed back for departure on a nonstop international flight to Kansai International Airport, Osaka, Japan. No injuries were sustained by either airplanes' crews or passengers. Visual meteorological conditions prevailed, and instrument flight rules (IFR) flight plans had been filed.</p> <p>Flight NH007, while taxing outbound on taxiway A behind gate G-102, contacted the right outboard wing section of UA809 with its right wing tip. Flight UA809, at gate G-102, was undergoing a push back operation and was under the control of the tractor operator. Both airplanes were halted and towed to their respective passenger gates where the passengers deplaned.</p> <p>A statement provided by the first officer of NH007 said that he saw a possible conflict and was maneuvering the airplane slightly to the left on the taxiway, away from UA809 to provide more clearance, when the wing tip contact occurred. None of the pilots on NH007 could visually see their airplane's wing tips from the cockpit.</p> <p>The United Airlines ground crew consisted of a tug driver and a wing walker on the left side of UA809. Statements provided by the flight crew of UA809 reported that the United Airlines flight crew and push back tractor driver saw NH007 approach their position and they expressed some concern about possible clearance issues. The tractor driver halted the push back operation just before the collision.</p>					
1.5 PERSONNEL					
<p>The All Nippon Airways crew consisted of three pilots. The captain, who possessed an airline transport pilot certificate, a Boeing 777 type rating, and had accumulated 6,600 total hours of flight time, was in the left seat. The captain was not at the controls. The first officer, who possessed an airline transport pilot certificate, a Boeing 777 type rating, and had accumulated 6,127 total flight hours, was in the right seat. The first officer was the pilot at the controls. The third pilot was a relief pilot, designated as a captain, and possessed an airline transport pilot certificate, a Boeing 777 type rating, and had accumulated 8,759 hours of total flight time, was in the observers seat.</p>					
FACTUAL REPORT - AVIATION					

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: LAX04LA007A

Occurrence Date: 10/07/2003

Occurrence Type: Accident

Narrative (Continued)

The United Airlines flight crew consisted of three pilots. The captain possessed an airline transport pilot certificate, a Boeing 777 type rating, and had accumulated 12,724 total hours of flight time, and was in the left seat. The first officer possessed an airline transport pilot certificate, a Boeing 777 type rating, and had accumulated 6,641 total flight time, and was in the right seat. A relief pilot was also present and seated on the flight deck.

The United Airlines push back crew consisted of the tug driver and a wing walker. A review of the push back crews' training records revealed that the tug driver was last signed off as qualified to dispatch and receive aircraft on June 8, 2003. The wing walker was signed off as qualified for wing walking duties on June 25, 2003.

The ramp tower controller had been working the "G" ramp for all of 2003 and had spent about half his time working that area during 2002. No records were located that documented ramp tower controller training or certification.

1.9 COMMUNICATIONS

The ramp tower controls aircraft movement in the G-Terminal nonmovement area and is operated by United Airlines. Spot 10 is the location on taxiway A, adjacent to the G-ramp area, where the switch from the ramp tower control to SFO ground control is made.

Review of the ramp tower communication tape revealed that at 11:46:18, NH007 requested and was approved for the push back from gate G-95. At 11:53:56, ramp tower cleared NH007 to spot 10. At 11:54:06, UA809 requested its push back from G-102; ramp tower said that they would call UA809 back in 1 minute. At 11:54:36, ramp tower cleared UA809 for the push back. Notably, there was no comment or caution to either airplane concerning oncoming taxi traffic or a push back operation at G-102 by the ramp tower controller. At 11:56:28, UA809 called the ramp tower requesting fire trucks.

Review of the San Francisco Air Traffic Control Tower (SFOATCT) communications tape revealed that 1 minute 20 seconds prior to the wing tip collision (about 11:55:08), NH007 requested taxi clearance from SFO ground control.

1.11 FLIGHT RECORDERS

1.11.1 NH007

The flight data recorders were operating at the time of the accident. The airplane's Digital Flight Data Recorder (DFDR) and Digital Cockpit Voice Recorder (DCVR) were removed from the airplane and sent directly to the National Transportation Safety Board Vehicle Recorder laboratory for analysis. A Safety Board specialist plotted the last 19.3 minutes of the airplane's operation for engine performance, thrust, ground speed, heading, brake pressure, and weight on wheels switches. The plot showed that left wheel brake pressure was applied, and a corresponding heading change of about 5 degrees to the north occurred just prior to the collision. The flight data recorder and cockpit voice recorder factual reports are included in the official docket of this accident.

1.11.2 UA809

The airplane's Digital Flight Data Recorder (DFDR) and Digital Cockpit Voice Recorder (DCVR) were removed from the airplane and sent directly to the Safety Board Vehicle Recorder laboratory for analysis. No pertinent data was recovered by the DFDR or the DCVR because these units were not energized at the time of the collision. The flight data recorder and cockpit voice recorder factual reports are included in the official docket of this accident.

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Narrative (Continued)

1.18 ADDITIONAL INFORMATION

1.18.1 San Francisco Airport Information

The nonmovement area surrounding the G terminal is under the control of a local control tower operated by United Airlines. The transfer of ground control from SFOATCT to the ramp tower for an aircraft arriving or departing the G terminal is Spot 10. Spot 10 is where the G-ramp intersects taxiway A and is a designated point where ground control authority is exchanged. Gate G-102 is the closest terminal gate to Spot 10 and is along the southern boundary of taxiway A.

1.18.2 UA809 Wing Walker/Guide Person

United Airlines push back procedures requires a "2 Person Pushback." This is accomplished using a wing walker or guide person in addition to the push back tractor driver. Additional wing walkers or guide persons may be added depending on the circumstances, such as, gate logistics, aircraft type, and weather. According to United Airlines procedural documents, the tractor driver is the person in charge of the dispatch and holds the ultimate responsibility for a safe dispatch.

One wing walker was assigned to UA809 and he was on station on the left side of the airplane. In his written statement, he said that while UA809 was being pushed back he was blocking traffic when he noticed UA809 stop. He then noticed NH007 approach on the other side, then heard a noise, and witnessed debris fall to the ground.

1.18.3 Boeing 777 Ground Maneuvering Characteristics


Depicted in Boeing's 777 Airplane Characteristics for Airport Planning document (D6-58329), 4.0 - Ground Maneuvering; when the airplane is in a ground turn the outboard wing tip of the Boeing 777 will continue to translate radially some distance beyond the original wing tip position depending on the angle imparted on the nose wheel.


1.18.4 Ramp Tower Responsibilities

A Memorandum of Understanding (MOU) between the Federal Aviation Administration "San Francisco Air Traffic Control Tower" (SFOATCT) and the San Francisco Terminal Equipment Co (SFOTEC), dated August 15, 2000, states that SFOTEC shall be the controlling agency for all boarding area "A" and "G" aircraft gates and direct departing aircraft to spots 1 or 10. San Francisco International Airport, Airport Operations Bulletins 00-04-AOB (July 31, 2000), 01-04-AOB (August 7, 2001), and 03-03-AOB (January 17, 2003) were issued in support of nonmovement ramp tower operations.

1.18.5 Surveillance Video

Examination of airport surveillance video recordings revealed the preimpact movement of the airplanes; however, the collision of the wing tips occurred outside the camera's field of view. A copy of the video is included in the official docket of this accident.

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: LAX04LA007A				
		Occurrence Date: 10/07/2003				
		Occurrence Type: Accident				
Landing Facility/Approach Information						
Airport Name San Francisco International		Airport ID: KSFO	Airport Elevation 13 Ft. MSL	Runway Used NA	Runway Length	Runway Width
Runway Surface Type: Asphalt						
Runway Surface Condition: Dry						
Type Instrument Approach: NONE						
VFR Approach/Landing: None						
Aircraft Information						
Aircraft Manufacturer Boeing		Model/Series 777-22B		Serial Number 30553		
Airworthiness Certificate(s): Transport						
Landing Gear Type: Retractable - Tricycle						
Homebuilt Aircraft? No		Number of Seats: 253	Certified Max Gross Wt. 535000 LBS	Number of Engines: 2		
Engine Type: Turbo Fan		Engine Manufacturer: Pratt Whitney	Model/Series: 4090	Rated Power: 90000 LBS		
- Aircraft Inspection Information						
Type of Last Inspection Continuous Airworthiness		Date of Last Inspection 07/2003	Time Since Last Inspection 964.6 Hours	Airframe Total Time 8627 Hours		
- Emergency Locator Transmitter (ELT) Information						
ELT Installed?		ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information						
Registered Aircraft Owner Wells Fargo Bank Northwest		Street Address 299 S Main St, 12th Floor				
		City Salt Lake City	State UT	Zip Code 84111		
Operator of Aircraft UNITED AIRLINES INC		Street Address 8550 W Bryn Mawr Ave				
		City Chicago	State IL	Zip Code 60666		
Operator Does Business As:			Operator Designator Code: UALA			
- Type of U.S. Certificate(s) Held:						
Air Carrier Operating Certificate(s): Flag Carrier/Domestic						
Operating Certificate:			Operator Certificate:			
Regulation Flight Conducted Under: Part 121: Air Carrier						
Type of Flight Operation Conducted: Scheduled; International; Passenger Only						
FACTUAL REPORT - AVIATION						

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: LAX04LA007A
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	Occurrence Type: Accident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 49
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Sex: M	Seat Occupied: Left	Principal Profession: Civilian Pilot	Certificate Number: On File
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Certificate(s): Airline Transport; Flight Instructor; Commercial; Flight Engineer

Airplane Rating(s): Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): Airplane Multi-engine; Airplane Single-engine; Instrument Airplane

Type Rating/Endorsement for Accident/Incident Aircraft? Yes	Current Biennial Flight Review? 07/2003
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Medical Cert.: Class 1	Medical Cert. Status: Valid Medical--no waivers/lim.	Date of Last Medical Exam: 12/2003
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- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	12724	524								
Pilot In Command(PIC)										
Instructor										
Last 90 Days	131	131								
Last 30 Days	73	73								
Last 24 Hours	0	0								

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed? No	Second Pilot? Yes
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Flight Plan/Itinerary

Type of Flight Plan Filed: IFR				
Departure Point	State	Airport Identifier	Departure Time	Time Zone
San Francisco	CA	KSFO	1200	PDT
Destination	State	Airport Identifier		
Osaka		JKIX		


Type of Clearance: None

Type of Airspace: Class B

Weather Information

Source of Briefing:
Unknown

Method of Briefing: Unknown


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Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
KFSO	1156	PST	13 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Few			Ft. AGL	Condition of Light: Day	
Lowest Ceiling: None		Ft. AGL	Visibility: 10	SM	Altimeter: 29.85 "Hg
Temperature: 18 °C	Dew Point: 13 °C	Wind Direction: 290		Density Altitude: Ft.	
Wind Speed: 15	Gusts:	Weather Conditions at Accident Site: Visual Conditions			
Visibility (RVR): Ft.	Visibility (RVV)	SM	Intensity of Precipitation:		
Restrictions to Visibility: None					
Type of Precipitation: None					

Accident Information		
Aircraft Damage: Substantial	Aircraft Fire: None	Aircraft Explosion: None

Classification: U.S. Registered/U.S. Soil					
- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot				1	1
Second Pilot				1	1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants				15	15
Other Crew				1	1
Passengers				253	253
- TOTAL ABOARD -				271	271
Other Ground					
- GRAND TOTAL -				271	271

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	Occurrence Date: 10/07/2003
	Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

Van S. McKenny

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