
Collision with crane, Boeing 747-400, HL???, November 30, 1998

Micro-summary: This Boeing 747-400 collided with construction equipment while taxiing.

Event Date: 1998-11-30 at 1045 EST

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

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

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		NTSB ID: NYC99LA029		Aircraft Registration Number: HL***	
		Occurrence Date: 11/30/1998		Most Critical Injury: Minor	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place JAMAICA		State NY	Zip Code 11430	Local Time 1045	Time Zone EST
Airport Proximity: On Airport		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Boeing		Model/Series 747-400		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>On November 30, 1998, at 1045 Eastern Standard Time, an Asiana Airlines cargo Boeing 747-400, HL7419, operating as flight 2923, was substantially damaged when it collided with a 60-foot, truck-mounted crane while taxiing at John F. Kennedy International Airport (JFK), Jamaica, New York. The Korean-certificated captain, first officer, and two-man relief crew were uninjured, while the crane operator received minor injuries. Visual meteorological conditions prevailed at the time of the accident. The scheduled cargo flight, which had just arrived from Anchorage International Airport (ANC), Anchorage, Alaska, was conducted under 14 CFR Part 129.</p> <p>According to Port Authority of New York and New Jersey (Port Authority) police reports, the airplane had just landed, and was cleared to taxi to the cargo area via taxiways "Charlie" and "Whiskey". After turning onto taxiway Whiskey, the airplane struck the crane, which had been operating in a taxiway safety area.</p> <p>A Federal Aviation Administration (FAA) Inspector stated that the crew had seen the construction being performed to the right of taxiway Whiskey, before turning the airplane onto it from taxiway Charlie. Approaching the construction, the first officer watched as the airplane's right wing passed over a parked flatbed truck, several feet outboard of the "number four" engine nacelle. He thought the wing would then clear the crane, which was outboard and past the truck. However, as the airplane continued taxiing, the right wing struck the crane, which then toppled over, ejecting the operator.</p> <p>The airplane was found stopped on the approximate centerline of the taxiway. Inspection revealed damage to the leading edge of the right wing, from the wingtip, inboard, for approximately 5 feet, a penetrated fuel tank dry-bay area, and damage to the wing spar. Damage also trailed aft, along the base of the winglet, for about 3 feet.</p> <p>Another FAA Inspector measured the distance from the toppled-over crane to the taxiway centerline, as being about 97 feet. The wooden safety barricade that separated the construction from the taxiway area, was about 123 feet from the taxiway centerline, and the length of the airplane's wing was approximately 106 feet from the centerline of the airplane.</p> <p>The airplane's cockpit voice recorder was analyzed, and a recovery was made of last 34 minutes of operation. A transcript was then made of the first 13 minutes of that segment. The recording was mostly in Korean, and the transcript was translated by a Safety Board employee who was fluent in that language.</p> <p>The segment began 46 seconds before the accident. The first voice recordings were heard 33 seconds after the segment began, between another aircraft and a ground controller. Then, at 40 seconds after the beginning of the segment, the accident airplane's first officer stated in English: "Right side clear." Six seconds after that, there was a "sound of a clunk." The captain asked what the</p>					
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sound was, and the first officer stated that the airplane's wing-tip had collided with a crane, but that he thought it had been cleared. Both pilots then continued to discuss how they thought the crane had been cleared, and the first officer remarked that the crane had also been knocked over. The pilots noted that the airplane was on the taxiway centerline.

In a subsequent recording, the captain stated: "I saw it. I was sure we would be okay. I was sure it was out of range." The first officer then said that he had never seen the crane. He also noted that there was no announcement about the crane on the ground control frequency, and in his final statement on the transcript, asked: "How come I didn't see it, if it was there?"

During a Port Authority police interview, the captain stated that he did not see any markings on the ground to aid in ensuring obstruction clearance, nor did he see a signalman. According to Korean authorities, the captain also reported that he saw another individual, who looked like a construction worker, and who was standing between the crane and the taxiway. The captain thought that the clearance between the airplane and the crane was assured because the worker did not signal otherwise.

In other police interviews, one construction worker stated that he saw the airplane as it proceeded along the taxiway, and thought it wasn't going to clear the crane. He looked at the cockpit of the airplane, but then "figured they thought they would miss the crane." Another worker stated that he tried to signal the airplane, but within 2 to 3 seconds, the airplane hit the crane. The driver of the flatbed truck reported that he saw an on-site private security guard start waving at the airplane, 20 to 30 feet before it got to the flatbed truck. The security guard stated, "I put my hand up to stop the plane, but the pilot did not see me. When he saw, he waved his hand, but after a few seconds, [the] plane hit the crane...."

When asked by an FAA Inspector to demonstrate the signal used, the security guard demonstrated a "slow down" signal. A supervisor for the security company stated that his employees were not trained in how to signal an aircraft to stop in an emergency, "because the airport authority did not have a requirement" for it.

Chapter 11 of the Airport Certification Manual for the airport described procedures for maintaining safety areas. It stated: "The temporary objects which could be struck by an aircraft, including other aircraft not under power and vehicles, within "clear areas" associated with runways and taxiways, will be NOTAMed." It also stated that a wingtip "Obstacle Free Zone" distance from "any operational taxiway used by air carrier aircraft to any parked aircraft, vehicles or similar object is normally maintained at no less than 130 feet."

Chapter 24 of the Airport Certification Manual for the airport required that the Airport Duty Manager or his designee approve, mark and light construction and maintenance areas. It also stated that all temporary objects which could be struck by an aircraft, including vehicles within "clear areas," would be reported. In the case of taxiways, all temporary objects within 130 feet of an active taxiway would also be reported. Reported information would be disseminated through various means, including bulletins, notification to the control tower, and the issuance of NOTAMs.

Chapter 25 of the Airport Certification Manual for the airport stated that, "All construction work and contractor activities within aeronautical areas are closely monitored by the Resident Engineer and the Operations Airport Duty Manager or designee." It also stated: "Construction sites are continually inspected by the Construction Supervisor or his staff during the work period and checked daily by the Airport Duty Manager."

In a written copy of an interview between FAA Airports Division Inspectors and Port Authority personnel, it was revealed that the construction near the accident site was for the installation of a water storage tank. A contract had been let between the Port Authority and a general contractor, who, in turn, hired a subcontractor to do the work. The Port Authority had held a pre-construction

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meeting with the general contractor, which included contract specifications and limitations at the work site, and the fact that any crane over 25 feet required Port Authority approval. Also noted during the interview, was that the general contractor had accomplished other major construction projects on the airport, had used cranes previously on the airport, and was familiar with Port Authority procedures.

The Port Authority representative went on to say that the purpose of the crane being on the construction site was to unload equipment from a flatbed truck, and that the arrival of the subcontractor and the rented crane had not been coordinated with the Port Authority resident engineer construction inspector. Subcontractor personnel took it upon themselves to place the crane in the taxiway safety area, erect the boom, and begin unloading the truck.

Originally, the construction site had been properly marked, and no NOTAMS had been issued because the planned construction would not have affected the taxiway. Subcontractor personnel had moved the established construction barriers because the ground surface around the construction site was broken and irregular, while the ground surface area where the crew eventually erected the crane was flat and smooth.

When asked if the Port Authority provided a construction agent to supervise the site, the answer was that the construction inspector was supposed to oversee the contract, but would not have maintained a constant presence at the site. The general contractor was responsible for supervising the site, and for compliance with the safety restrictions of the contract provisions. There was no construction inspector present during the time of the accident because he was at another site, and it was not uncommon for an inspector to oversee multiple sites at the same time.

Regarding ground controller oversight, the FAA Airports Division Inspector stated that the air traffic control tower had had line-of-sight vision to the area of the accident, however, due to the amount of construction and the backdrop of buildings, it would have been very difficult to see the crane. He also noted that the controllers would not have been watching the airplane that closely in the area of the accident, since after it turned onto the "stub" part of taxiway Whiskey, the airplane would have been taxiing into the hangar/ramp area of Asiana, and would have effectively been on its own at that point.

A review of local and ground control voice communications revealed no mention of the crane to the flight crew. According to the FAA Airports Division Inspector, NOTAMS were issued concerning the construction, but they were general in nature, and only stated that there were numerous cranes operating on or about the airport.

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Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
JOHN F KENNEDY INTL	JFK	22 Ft. MSL	0		
Runway Surface Type:					
Runway Surface Condition:					
Type Instrument Approach:					
VFR Approach/Landing:					
Aircraft Information					
Aircraft Manufacturer		Model/Series		Serial Number	
Boeing		747-400		25781	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 0	Certified Max Gross Wt.	873000 LBS	Number of Engines: 4	
Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:		
Turbo Fan	GE	CF6-80C2B1F	57900 LBS		
- Aircraft Inspection Information					
Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time		
Continuous Airworthiness	11/1998	95 Hours	19773 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? Yes	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner		Street Address			
		HIGASHI-SHINGAWA			
CITICORP		City	State	Zip Code	
		TOKYO	OF		
Operator of Aircraft		Street Address			
		ASIANA TOWN, KANGSEO KU			
ASIANA AIRLINES		City	State	Zip Code	
		SEOUL	OF		
Operator Does Business As:			Operator Designator Code:		
- Type of U.S. Certificate(s) Held: None					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 129: Foreign					
Type of Flight Operation Conducted: Scheduled; International; Cargo					
FACTUAL REPORT - AVIATION					

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: NYC99LA029
	Occurrence Date: 11/30/1998
	Occurrence Type: Accident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 55
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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

Airplane Rating(s): Multi-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): None

Type Rating/Endorsement for Accident/Incident Aircraft? Yes	Current Biennial Flight Review?
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Medical Cert.: Class 1	Medical Cert. Status: Valid Medical--w/ waivers/lim.	Date of Last Medical Exam: 06/1999
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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	8700	2106								
Pilot In Command(PIC)	5788	1779								
Instructor										
Last 90 Days	161	161								
Last 30 Days	48	48								
Last 24 Hours	7	7								

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 ANCHORAGE	State AK	Airport Identifier ANC	Departure Time 0915	Time Zone GMT
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Destination Same as Accident/Incident Location	State	Airport Identifier JFK	
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Type of Clearance:

Type of Airspace:

Weather Information

Source of Briefing:

Method of Briefing:

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Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
JFK	1051	EST	13 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Unknown			0 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: Overcast		22000 Ft. AGL		Visibility: 10 SM	Altimeter: 30.00 "Hg
Temperature: 12 °C	Dew Point: 10 °C	Wind Direction: 100		Density Altitude: Ft.	
Wind Speed: 8	Gusts:	Weather Conditions at Accident Site: Visual Conditions			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	Intensity of Precipitation: Unknown			
Restrictions to Visibility: None					
Type of Precipitation: None					

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

Classification: Foreign 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					
Other Crew				2	2
Passengers					
- TOTAL ABOARD -				4	4
Other Ground	0	0	1		1
- GRAND TOTAL -	0	0	1	4	5

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Administrative Information

Investigator-In-Charge (IIC)
PAUL R. COX

Additional Persons Participating in This Accident/Incident Investigation:

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