



# Aviation Investigation Final Report

<b>Location:</b>	Los Angeles, California	<b>Accident Number:</b>	DCA17CA195
<b>Date &amp; Time:</b>	September 12, 2017, 13:10 Local	<b>Registration:</b>	N69813
<b>Aircraft:</b>	Boeing 737-924ER	<b>Aircraft Damage:</b>	Minor
<b>Defining Event:</b>	Ground collision	<b>Injuries:</b>	140 None
<b>Flight Conducted Under:</b>	Part 121: Air carrier - Scheduled		

## Analysis

On September 12, 2017, at 1310 pacific daylight time, United Airlines flight 447, a Boeing 737, N69813, collided with Air Canada flight 785, a Boeing 767, C-GHOZ, while taxiing on taxiway C near gate 69B at the Los Angeles International Airport (LAX), Los Angeles, California. Both aircraft were regularly scheduled passenger flights and there were no injuries aboard either airplane. The right winglet of the B737 had minor damage and the right horizontal stabilizer of the B767 was substantially damaged.

The B767 was being marshaled onto gate 69B and was instructed to stop approximately 15 feet short of the stop line because it is normally a tow-in gate. The flight crew shut down the engines and awaited the ground crew to hook up the tow bar. There are white lines painted around each gate area to aid ground vehicles driving on the ramp. The B767 tail protruded beyond the white lines perpendicular to, and adjacent to, taxiway C.

The B737 was taxiing out for departure via taxiway C in accordance with ATC instructions. The captain reported that he saw the B767 and maneuvered left of centerline for more clearance. He asked the first officer (FO), who was heads down making FMS entries, to look and verify if they had enough clearance. The FO reported he saw that the B767 was hooked up to the tug but wasn't sure if it was being towed. He judged that there was about 5 feet of clearance. He said he saw no action by the marshallers indicating they thought the airplanes were too close.

As the airplane continued taxiing, the right winglet of the B737 contacted the horizontal stabilizer of the B767. The flight crew reported that they did not feel an impact but were told by ATC that the collision had occurred. The B737 returned to the gate and deplaned passengers normally. The B767 was towed into the gate and deplaned passengers normally.

Surveillance video from Gate 69B was obtained and captured the event. The B737 nosewheel was tracking along the yellow centerline of taxiway C.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the B737 flight crew's misjudgment of the clearance between their wingtip and the B767 horizontal stabilizer.

### Findings

Personnel issues	Incorrect action performance - Flight crew
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## Factual Information

### History of Flight

Taxi-to runway	Ground collision (Defining event)
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### Pilot Information

Certificate:	Airline transport	Age:	47
Airplane Rating(s):	Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	5-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1	Last FAA Medical Exam:	
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	March 18, 2017
Flight Time:	25000 hours (Total, all aircraft), 2760 hours (Total, this make and model), 20000 hours (Pilot In Command, all aircraft), 210 hours (Last 90 days, all aircraft)		

### Co-pilot Information

Certificate:	Airline transport	Age:	
Airplane Rating(s):	Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):		Restraint Used:	5-point
Instrument Rating(s):		Second Pilot Present:	Yes
Instructor Rating(s):		Toxicology Performed:	No
Medical Certification:		Last FAA Medical Exam:	
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	April 18, 2017
Flight Time:	8100 hours (Total, all aircraft), 1320 hours (Total, this make and model), 220 hours (Last 90 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Boeing	<b>Registration:</b>	N69813
<b>Model/Series:</b>	737-924ER 924	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2014	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	43531
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	187
<b>Date/Type of Last Inspection:</b>	August 28, 2017	<b>Certified Max Gross Wt.:</b>	174198 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2
<b>Airframe Total Time:</b>	13045 Hrs at time of accident	<b>Engine Manufacturer:</b>	CFM INTL
<b>ELT:</b>	Installed	<b>Engine Model/Series:</b>	CFM56-7B27E
<b>Registered Owner:</b>		<b>Rated Power:</b>	0 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	Flag carrier (121)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>		<b>Temperature/Dew Point:</b>	
<b>Precipitation and Obscuration:</b>			
<b>Departure Point:</b>	Los Angeles, CA (LAX )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	San Francisco, CA (SFO )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>		<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Los Angeles International Airp LAX	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	0 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	7 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>	133 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	140 None	<b>Latitude, Longitude:</b>	33,-118(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	English, William
<b>Additional Participating Persons:</b>	
<b>Original Publish Date:</b>	September 5, 2018
<b>Note:</b>	This accident report documents the factual circumstances of this accident as described to the NTSB.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=96000">https://data.nts.gov/Docket?ProjectID=96000</a>

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).



# Aviation Investigation Final Report

<b>Location:</b>	Los Angeles, California	<b>Accident Number:</b>	DCA17CA195
<b>Date &amp; Time:</b>	September 12, 2017, 13:10 Local	<b>Registration:</b>	C-GHOZ
<b>Aircraft:</b>	Boeing 767-375	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Ground collision	<b>Injuries:</b>	N/A
<b>Flight Conducted Under:</b>	Part 129: Foreign		

## Analysis

On September 12, 2017, at 1310 pacific daylight time, United Airlines flight 447, a Boeing 737, N69813, collided with Air Canada flight 785, a Boeing 767, C-GHOZ, while taxiing on taxiway C near gate 69B at the Los Angeles International Airport (LAX), Los Angeles, California. Both aircraft were regularly scheduled passenger flights and there were no injuries aboard either airplane. The right winglet of the B737 had minor damage and the right horizontal stabilizer of the B767 was substantially damaged.

The B767 was being marshaled onto gate 69B and was instructed to stop approximately 15 feet short of the stop line because it is normally a tow-in gate. The flight crew shut down the engines and awaited the ground crew to hook up the tow bar. There are white lines painted around each gate area to aid ground vehicles driving on the ramp. The B767 tail protruded beyond the white lines perpendicular to, and adjacent to, taxiway C.

The B737 was taxiing out for departure via taxiway C in accordance with ATC instructions. The captain reported that he saw the B767 and maneuvered left of centerline for more clearance. He asked the first officer (FO), who was heads down making FMS entries, to look and verify if they had enough clearance. The FO reported he saw that the B767 was hooked up to the tug but wasn't sure if it was being towed. He judged that there was about 5 feet of clearance. He said he saw no action by the marshallers indicating they thought the airplanes were too close.

As the airplane continued taxiing, the right winglet of the B737 contacted the horizontal stabilizer of the B767. The flight crew reported that they did not feel an impact but were told by ATC that the collision had occurred. The B737 returned to the gate and deplaned passengers normally. The B767 was towed into the gate and deplaned passengers normally.

Surveillance video from Gate 69B was obtained and captured the event. The B737 nosewheel was tracking along the yellow centerline of taxiway C.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the B737 flight crew's misjudgment of the clearance between their wingtip and the B767 horizontal stabilizer.

### Findings

Personnel issues	Incorrect action performance - Pilot of other aircraft
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## Factual Information

### History of Flight

Pushback/tow-engine oper	Ground collision
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### Pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	63
<b>Airplane Rating(s):</b>	Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	June 15, 2017
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	January 24, 2017
<b>Flight Time:</b>	15343 hours (Total, all aircraft), 7758 hours (Total, this make and model), 7758 hours (Pilot In Command, all aircraft), 186.6 hours (Last 90 days, all aircraft), 72.3 hours (Last 30 days, all aircraft), 5.8 hours (Last 24 hours, all aircraft)		

### Co-pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	47
<b>Airplane Rating(s):</b>	Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>		<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>		<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	February 10, 2017
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	August 3, 2017
<b>Flight Time:</b>	6865 hours (Total, all aircraft), 3473.5 hours (Total, this make and model), 3385 hours (Pilot In Command, all aircraft), 87.1 hours (Last 90 days, all aircraft), 51.3 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		



## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Boeing	<b>Registration:</b>	C-GHOZ
<b>Model/Series:</b>	767-375 375	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1989	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	24087
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	223
<b>Date/Type of Last Inspection:</b>	August 23, 2017	<b>Certified Max Gross Wt.:</b>	400004 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2
<b>Airframe Total Time:</b>	120691.5 Hrs at time of accident	<b>Engine Manufacturer:</b>	
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	
<b>Registered Owner:</b>		<b>Rated Power:</b>	
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	Foreign air carrier (129)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>		<b>Temperature/Dew Point:</b>	
<b>Precipitation and Obscuration:</b>			
<b>Departure Point:</b>	Toronto (CYYZ)	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Los Angeles, CA (LAX )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>		<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Los Angeles International Airp LAX	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	0 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>		<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	N/A	<b>Latitude, Longitude:</b>	33,-118(est)

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