
TCAS maneuver injury, Boeing 737-322, July 31, 2000

Micro-summary: During a TCAS Resolution Advisory maneuver by this Boeing 737-322, a passenger was injured.

Event Date: 2000-07-31 at 2215 CDT


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


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

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 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: CHI00LA269		Aircraft Registration Number: N313UA	
		Occurrence Date: 07/31/2000		Most Critical Injury: Serious	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place CHICAGO		State IL	Zip Code 60666	Local Time 2215	Time Zone CDT
Airport Proximity: Unknown		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Boeing		Model/Series 737-322		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:					
<p>On July 31, 2000, about 2215 central daylight time (cdt), a Boeing 737-322, N313UA, operated as United Airlines flight #531 to Chicago, Illinois, piloted by an airline transport pilot-rated captain and copilot, sustained a serious in-flight injury to one passenger, during an evasive maneuver, following a Traffic Alert and Collision Avoidance System (TCAS) warning, approximately 20 minutes prior to landing. The 14 CFR Part 121 scheduled domestic passenger flight was operating on an IFR flight plan. Visual meteorological conditions prevailed at the time of the accident. The 2 flight crewmembers, 3 flight attendants, and remaining 112 passengers were uninjured. The flight originated from Boston General Edward Lawrence Logan International Airport, near Boston, Massachusetts, at 2116 eastern daylight time and landed at Chicago O'Hare International Airport at 2235 cdt.</p> <p>In his written statement, the captain stated, "In reference to the flight from Boston to Chicago I do recall a several hour delay leaving Boston. The delay was due to a radar outage and the unimatic computer system going down. However, I have no recollection of any unusual events that occurred during the remainder of the flight."</p> <p>In his written statement, the copilot stated, "Passing approximately 15,000 feet on the arrival into Chicago everything was normal, I was the Pilot Flying (PF), the autopilot was engaged, the seat belt sign was on, and we were clear of clouds. However, shortly thereafter while continuing our descent into Chicago, the Traffic Alert and Collision Avoidance System (TCAS) alerted us to a potential conflict with an aural 'TRAFFIC, TRAFFIC' warning, the EHSI [Electronic Horizontal Situation Indicator] displayed a visual warning as well. The captain and I both immediately scanned outside in an attempt to visually acquire the traffic, though we were clear of clouds it was a dark evening and neither of us could spot the traffic. Almost immediately after the initial Traffic Advisory (TA), a subsequent 'CLIMB, CLIMB, CLIMB' aural warning was issued at approximately 14,000 feet as well as visual warnings on the EHSI and the EADI [Electronic Attitude Director Indicator]. I immediately disengaged the autopilot and began an initial pitch up to place the airplane symbol on the outside of the red avoidance area on the EADI. At this point the Captain took control of the airplane and increased the rate of rotation. The TCAS Resolution Advisory 'RA' commanded a pitch attitude of approximately 5 degrees nose up. Within one minute the TCAS 'CLEAR OF CONFLICT' aural warning was issued and the captain reestablished a descent while I notified ATC [Air Traffic Control] of the RA and our resumption of the descent. ATC advised us that there was no target on their radar. The captain then gave control of the aircraft back to me and I reengaged the autopilot. The captain contacted the flight attendants to ascertain the condition of the passengers and cabin crew. He was informed that one passenger hurt his ankle during the avoidance maneuver, but was not in need of immediate medical assistance. The passenger subsequently requested a flight attendant coordinate for a supervisor and a wheel chair to meet the aircraft upon arrival at the gate. After an uneventful landing, I contacted ramp control and requested a supervisor and wheel chair meet the aircraft."</p>					
FACTUAL REPORT - AVIATION					


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Narrative (Continued)

A flight attendant stated, "I was in the galley in the back (737) - seat belt sign was off - 2 gentleman were visiting with us - standing - the seat belt sign was turned on. We requested they be seated, [and] severe turbulence hit. I grabbed a hand hold in galley, but still fell. One gentleman was knocked to the ground, hitting, I believe his knee. He was sitting in the last row of coach seat D. He was very nice and kept saying he was fine. We had a CSR speak to him upon landing. He was complaining of some pain."

A United Airlines weather report summary stated, "Although the area was under the influence of low pressure, very little active weather was present. The available data does not support the presence of clear air turbulence. The only possibility of turbulence was associated with a few scattered showers along the route. Based on the ASD track/radar overlay, the flight passed near or over some of these showers in two locations - the southern tip of Lake Huron, and the eastern shore of Lake Michigan."

The doctor who treated the passenger stated, "Radiographs were take[n] 01 August 2000 and were significant for a left fibular fracture."

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Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Type Instrument Approach: NONE					
VFR Approach/Landing:					
Aircraft Information					
Aircraft Manufacturer Boeing		Model/Series 737-322		Serial Number 23674	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 113	Certified Max Gross Wt.	130000 LBS	Number of Engines: 2	
Engine Type: Turbo Fan	Engine Manufacturer: Cfm	Model/Series: CFM56-3C-1	Rated Power: 22000 LBS		
- Aircraft Inspection Information					
Type of Last Inspection Continuous Airworthiness	Date of Last Inspection 07/2000	Time Since Last Inspection 262 Hours	Airframe Total Time 39238 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner UNITED AIRLINES		Street Address P.O. BOX 66100			
		City CHICAGO	State IL	Zip Code 60666	
Operator of Aircraft Same as Reg'd Aircraft Owner		Street Address Same as Reg'd Aircraft Owner			
		City	State	Zip Code	
Operator Does Business As: UNITED AIRLINES			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; Domestic; Passenger Only					
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First Pilot Information

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

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--no waivers/lim.	Date of Last Medical Exam: 06/2000
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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	7672	3089								
Pilot In Command(PIC)		3089								
Instructor										
Last 90 Days		207								
Last 30 Days		61								
Last 24 Hours		8								

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 BOSTON	State MA	Airport Identifier BOS	Departure Time 2116	Time Zone EDT
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Destination Same as Accident/Incident Location	State	Airport Identifier ORD	
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Type of Clearance: **IFR**

Type of Airspace: **Class E**

Weather Information

Source of Briefing:
Company

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
ORD	2156	CDT	658 Ft. MSL	0 NM	0 Deg. Mag.

Sky/Lowest Cloud Condition: Scattered	2400 Ft. AGL	Condition of Light: Night/Dark
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Lowest Ceiling: Broken	3300 Ft. AGL	Visibility: 10	SM	Altimeter: 29.00	"Hg
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Temperature: 70 °C	Dew Point: 66 °C	Wind Direction: 300	Density Altitude: Ft.
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Wind Speed: 7	Gusts:	Weather Conditions at Accident Site: Visual Conditions
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Visibility (RVR): 0 Ft.	Visibility (RVV) 0	SM	Intensity of Precipitation: Unknown
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Restrictions to Visibility: None

Type of Precipitation: None

Accident Information

Aircraft Damage: None	Aircraft Fire: None	Aircraft Explosion: None
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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				3	3
Other Crew					
Passengers		1		112	113
- TOTAL ABOARD -		1		117	118
Other Ground	0	0	0		0
- GRAND TOTAL -	0	1	0	117	118

National Transportation Safety Board

FACTUAL REPORT

AVIATION



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Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

EDWARD F. MALINOWSKI

Additional Persons Participating in This Accident/Incident Investigation:

ROBERT D WOODS

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