
Runway overrun, Boeing 737-130, February 20, 1996

Micro-summary: This Boeing 737-130 overran the runway.


Event Date: 1996-02-20 at 1512 EST

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: IAD96IA044		Aircraft Registration Number: N33202	
		Occurrence Date: 02/20/1996		Most Critical Injury: None	
		Occurrence Type: Incident		Investigated By: NTSB	
Location/Time					
Nearest City/Place WASHINGTON		State DC	Zip Code 20001	Local Time 1512	Time Zone EST
Airport Proximity: On Airport		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Boeing		Model/Series 737-130		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>HISTORY OF FLIGHT</p> <p>On February 20, 1996, at 1512 eastern standard time, a Boeing 737-130, N33202, registered to and operated by Continental Airlines as Flight 1156, on a Title 14 CFR Part 121 scheduled domestic flight, ran off the departure end of runway 36 and onto the overrun area after landing at Washington National Airport (DCA,) Washington, D.C. The 74 passengers and 5 crewmembers onboard the airplane reported no injuries. The airplane sustained minor damage. Instrument meteorological conditions prevailed and a instrument flight rules (IFR) flight plan was filed. The flight departed from Greensboro/Piedmont Triad International Airport, Greensboro, North Carolina at 1432 eastern standard time.</p> <p>The airplane, a Boeing 737-130, originally departed from Tampa International Airport, Tampa, Florida with a stopover at Greensboro/Piedmont Triad International Airport, Greensboro, North Carolina. The flightcrew from the Tampa to Greensboro flight indicated that they experienced not anomalies during that flight. The pilots for the flight from Greensboro to Washington, D.C. boarded the airplane at Greensboro, and indicated that the en route portion of the flight proceeded normally.</p> <p>The pilots reported that during their arrival to the destination airport, the approach controller advised them that they were number one for the runway, and requested that they keep their airspeed up during the approach. The flightcrew obtained the current Washington National Airport Terminal Information System (ATIS,) designated "Delta," which noted an "overriding tailwind component" on final approach for runway 36. According to the captain's written statement, the weather was actually better than described by the ATIS, and the surface winds were out of 040 degrees at 7 knots.</p> <p>The captain stated that he proceeded to the runway visually, and used the Instrument Landing System (ILS) approach as a back up. He reported that, when the airplane was about 11 miles south of the airport, descending on the approach, he began to slow the airplane to approach and landing airspeeds. Air traffic control (ATC) personnel cleared the flight to land on runway 36. The local (DCA tower) controller reported that the airplane touched down in a three point (flat) attitude at approximately the Foxtrot intersection. The controller indicated that he observed the airplane's thrust reversers deploy in the vicinity of the intersection of runway 36 and taxiway November. (An airport diagram is appended.) The controller stated that at this point he realized that the airplane was not going to remain on the runway. The airplane continued off the departure end of runway 36, and came to a stop approximately 250 feet into the overrun area.</p> <p>PERSONNEL INFORMATION</p> <p>The captain held an Airline Transport Pilot's Certificate with over 11,000 total flight hours and a</p>					
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type rating in the B-737. He held a current first class medical, issued January 8, 1996, with no restrictions or limitations noted. The captain's flight time in the incident make and model airplane was reported as follows: 2,294 hours total; 138 hours in last 90 days; 58 hours in the last 30 days; and 1 hour in the last 24 hours.

The first officer held an Airline Transport Pilot's Certificate with 8700 total flight hours and no type rating for the B-737. He held a current first class medical, issued December 13, 1995, with no restrictions or limitations noted. The first officer's flight time in the incident make and model airplane was reported as follows: 5,500 hours total; 211 hours in the last 90 days; 59 hours in the last 30 days; 1 hour in the last 24 hours.

In accordance with Continental Airlines' policy and Federal regulations, both pilots were given a breath alcohol test after the incident. The test results were negative. Breath alcohol test results are appended.

AIRCRAFT INFORMATION

The Boeing 737-130, N33202, was in a continuous airworthiness maintenance program, with the most recent inspection performed on February 15, 1996. Records indicated that the airplane had flown 38 hours since the most recent inspection, and the airframe had accumulated a total of 66,654 total flight hours. No pertinent anomalies were noted in the aircraft maintenance logbooks.

The airplane's certificated maximum gross weight is 109,000 pounds. According to the captain's statement, the airplane weighed less than 94,000 pounds at the time of the approach, so 94,000 pounds approach airspeed settings were used. He stated that the landing flap setting was 25 degrees instead of 30 due to the 90,000 pounds weight limit to meet FAR 36 noise abatement sound levels.

After the incident, the captain filled out an irregularity report which stated that during the landing roll, he was unable to stop the aircraft on the runway. He indicated that during the postflight inspection, he observed that the two inboard main landing gear tires were deflated. The captain filled out a maintenance sheet with the same statement.

After the incident, a maintenance group was sent to assess the damage sustained by the airplane. They reported that they found the number 2 and number 3 main landing gear tires were blown and there was minor foreign object damage to both engines. The anti skid system was tested in accordance with the airplane maintenance manual, and no defects were noted. Subsequent work performed on the anti skid systems revealed one discrepancy. According to the Federal Aviation Administration (FAA,) during a test of the anti skid system, one channel on the master control box failed to test correctly. This was the channel that controlled the inboard brakes. Continental Airlines reported that this discrepancy was worked on at the request of their Maintenance Control, for precautionary reasons only.

METEOROLOGICAL CONDITIONS

The weather reported at Washington National at 1450 eastern standard time was: scattered clouds at 400 feet; a measured ceiling of 700 feet broken; 2400 overcast; visibility, 3 miles with light rain and fog; temperature, 49 degrees Fahrenheit (F); dewpoint, 49 degrees F; and winds out of 040 degrees magnetic at 7 knots; altimeter setting, 30.06 inches of Hg.

The pilot in command, who was flying the airplane, stated that "the weather was better than reported". The ATIS reported an "overriding tailwind component" on final approach for runway 36.

COMMUNICATIONS

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The voice communications between the flightcrew and the approach/local controllers during the final miles into the airport were reviewed. During the approach sequence, neither pilot indicated that their approach airspeed concerned them, nor did they request a reduction of airspeed.

The approach radar controller described the traffic at the time of the incident as light, and not complex. He stated that the incident airplane was identified on radar when it was thirty-five miles south-southwest, and was number one for the approach to runway 36. The approach controller transferred the flight to the local (tower) controller when it was about ten miles south of the destination airport. The approach controller stated that he did not specifically note the approach speed of the incident airplane, however, he did not request the pilots to reduce their airspeed as the airplane proceeded inbound. The approach controller indicated that he did not notice anything unusual about the incident airplane's approach.

The ATC Shift Supervisor, who was in the tower control cab during the time of the incident, stated that he noticed that the incident airplane was established on final approach at an airspeed of 240 knots. The controllers reported that airplanes typically entered final approach at airspeeds between 170 and 210 knots. The supervisor indicated that he observed the airplane, with the data tag, on the DBRITE radar screen located in the tower cab. He further stated that the airspeed appeared higher than the other aircraft approaching to land at the time of the incident.

The local controller stated that he noticed the incident airplane touchdown abeam taxiway Foxtrot, and he indicated that the airplane appeared to be coming in "hot" during the approach and landing. He further stated that he observed the incident airplane's thrust reversers deploy near the intersection of runway 36 and taxiway November. The ground controller concurred with the local controller's observations, and added that the incident airplane touched down further down the runway than other airplanes that arrived at DCA around the time of the incident.

AIRPORT INFORMATION

Washington National Airport's (DCA) runway 36 is grooved asphalt, 6869 feet long and 150 feet wide.

The runway has Centerline Lighting and High Intensity Runway Lights. The distance remaining to the end of the runway for runway 36 from taxiways Foxtrot and November are 4500 feet and 2150 feet respectively.

The approach radar utilized at Washington National Airport last showed the airplane at 400 feet mean sea level, approximately a mile south of the runway threshold and with a ground speed of 250 knots.

Shortly after the airplane over ran the runway, a ground vehicle friction reading was taken for runway 36/18 using a Tapley Meter. The reading for the three zones, Touchdown zone, Rollout zone and the Departure zone, which correspond to the south end, the mid-field, and the north end of the runway, all indicated excellent braking action.

FLIGHT RECORDERS

The Cockpit Voice Recorder (CVR) and the Digital Flight Data Recorder (DFDR) were removed from the airplane and sent to the National Transportation Safety Board's Vehicle Performance Laboratory for readout and evaluation. Electrical power to the CVR was not disconnected after the incident, allowing the CVR to continue to record. All voice recordings from the inbound portion of the incident flight were recorded over and no useful data was retrieved from the CVR. A successful readout was performed on the DFDR. The data retrieved from the DFDR indicated that the airplane touched down at approximately 180 knots indicated airspeed. To verify the validity of the data in the DFDR, the NTSB technician retrieved the data for the flight from Tampa International Airport to Greensboro Airport. The data retrieved from that flight showed that the airplane approached and touched down at approximately 140 knots. Both the CVR and DFDR were returned to Continental

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Airlines maintenance department located at Washington National Airport on February 21, 1996.

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		Occurrence Type: Incident			
Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
WASHINGTON NATIONAL	DCA	16 Ft. MSL	36	6869	150
Runway Surface Type: Asphalt					
Runway Surface Condition: Wet					
Type Instrument Approach: ILS-complete; Visual					
VFR Approach/Landing: None					
Aircraft Information					
Aircraft Manufacturer		Model/Series		Serial Number	
Boeing		737-130		19019	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 95	Certified Max Gross Wt.	109000 LBS	Number of Engines: 2	
Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:		
Turbo Fan	P&W	JT8D-7	14000 LBS		
- Aircraft Inspection Information					
Type of Last Inspection		Date of Last Inspection	Time Since Last Inspection	Airframe Total Time	
Continuous Airworthiness		02/1995	38 Hours	1118 Hours	
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner		Street Address			
CONTINENTAL AIRLINES		2929 ALLEN PARKWAY SUITE 1900			
		City	State	Zip Code	
		HOUSTON	TX	77019	
Operator of Aircraft		Street Address			
Same as Reg'd Aircraft Owner		Same as Reg'd Aircraft Owner			
		City	State	Zip Code	
Operator Does Business As: CONTINENTAL AIRLINES			Operator Designator Code: CALA		
- 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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	Occurrence Type: Incident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 43
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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; Commercial; Military

Airplane Rating(s): Multi-engine Land; Single-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--no waivers/lim.	Date of Last Medical Exam: 01/1996
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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	11234	2294								
Pilot In Command(PIC)	6778									
Instructor	720									
Last 90 Days	138	138								
Last 30 Days	58	58								
Last 24 Hours	1	1								

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed? Yes	Second Pilot? Yes
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Flight Plan/Itinerary

Type of Flight Plan Filed: IFR	
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Departure Point GREENSBORO	State NC	Airport Identifier GSO	Departure Time 1432	Time Zone EDT
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Destination Same as Accident/Incident Location	State	Airport Identifier DCA	
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Type of Clearance: IFR

Type of Airspace: Class D

Weather Information

Source of Briefing:
Company; Flight Service Station

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
	0000		0 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			400 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: Broken		700 Ft. AGL	Visibility: 3 SM	Altimeter: 30.00	"Hg
Temperature: 9 °C	Dew Point: °C	Wind Direction: 40		Density Altitude: Ft.	
Wind Speed: 7	Gusts:	Weather Conditions at Accident Site: Instrument Conditions			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	Intensity of Precipitation: Light			
Restrictions to Visibility: Fog					
Type of Precipitation: Rain					

Accident Information		
Aircraft Damage: Minor	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				3	3
Other Crew					
Passengers				74	74
- TOTAL ABOARD -				79	79
Other Ground	0	0	0		0
- GRAND TOTAL -	0	0	0	79	79

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Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

JAMES J. CAIN

Additional Persons Participating in This Accident/Incident Investigation:

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