



# Aviation Investigation Final Report

<b>Location:</b>	Newark, New Jersey	<b>Incident Number:</b>	NYC071A015
<b>Date &amp; Time:</b>	October 28, 2006, 18:31 Local	<b>Registration:</b>	N17105
<b>Aircraft:</b>	Boeing 757-224	<b>Aircraft Damage:</b>	None
<b>Defining Event:</b>		<b>Injuries:</b>	154 None
<b>Flight Conducted Under:</b>	Part 121: Air carrier - Scheduled		

## Analysis

The flight crew conducted an Instrument Landing System (ILS) approach to runway 22L, during night, visual meteorological conditions. As the airplane descended to an altitude of approximately 8,000 to 9,000 feet, the flight crew was instructed to "circle to land on runway 29." At an altitude of 900 feet, the first officer turned the airplane onto the final approach for runway 29, a 6,800 foot-long, 150-foot-wide asphalt runway. As he rolled the airplane level, he noted four white lights on the PAPI, which the flight crew believed was located to the left of the runway. As the airplane touched down, the captain realized they landed on taxiway Zulu, a 75-foot-wide concrete taxiway, aligned parallel and to the right of runway 29. The incident flight was the first officer's first approach to runway 29. Runway 29 was equipped with high-intensity runway edge lights (HIRL), which were set on step 1 (out of a 5-step system) at the time of the incident. Runway 29 also had centerline lights (CL), and runway end identifier lights (REIL), which were visually confirmed to be on at the time of the incident. The runway 29 PAPI was located on the right side of the runway, as described on the airport information page associated with the instrument procedures for the airport. Taxiway Zulu had green centerline lights, which were set on step 3 (of a 5-step system). In addition, blue reflective markers, defined the edges of taxiway Zulu. According to airport personnel, six aircraft made the same approach, within 10 minutes of the incident aircraft, and landed successfully on runway 29.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: The flight crew's misidentification of the parallel taxiway as the active runway, resulting in the flight crew executing a landing on the taxiway. Contributing was the night lighting conditions.

## Findings

Occurrence #1: MISCELLANEOUS/OTHER

Phase of Operation: LANDING

### Findings

1. (F) LIGHT CONDITION - NIGHT
2. (C) WRONG RUNWAY - INADVERTENT - FLIGHTCREW

## Factual Information

### HISTORY OF FLIGHT

On October 28, 2006, at 1831 eastern daylight time, a Boeing 757-224, N17105, operated by Continental Airlines as flight 1883, was not damaged while landing on taxiway Zulu, at Newark Liberty International Airport (EWR), Newark, New Jersey. There were no injuries to the 2 certificated airline transport pilots, 4 flight attendants, or 148 passengers. Visual meteorological conditions prevailed, and an instrument flight rules (IFR) flight plan was filed for the flight, which originated at Orlando International Airport (MCO), Orlando, Florida. The scheduled passenger flight was conducted under 14 Code of Federal Regulations Part 121.

According to the flight crew, as they contacted New York Approach Control, they were assigned the Instrument Landing System (ILS) Runway 22L approach at EWR. When the airplane descended to an altitude of approximately 8,000 - 9,000 feet, the flight crew was instructed to "circle to land on runway 29." The first officer disconnected the autopilot at the glide slope intercept (at an altitude of 3,000 feet), and manually flew the airplane to the outer marker on the ILS Runway 22L approach. At that point, he turned off the flight director and flew the airplane "consistent with how [the flight crew] briefed the approach."

At an altitude of 900 feet, the first officer turned the airplane onto the final approach for runway 29. As he rolled the airplane level, he noted four white lights on the PAPI, and pitched the airplane nose down to capture the proper glide path. Once the airplane was established on the proper glide path, the flight crew believed that the PAPI was located to the left of the runway.

The flight crew believed they had the runway centerline lights in view, and as the airplane descended below 300 feet, it flew through an intermittent rain shower, briefly reducing the flight crew's view of the runway. After clearing the rain shower, the flight crew confirmed final glide path alignment and noted that the PAPI appeared extremely bright compared to other lights. They also believed the PAPI to be in a "standard configuration" on the left side of the runway. Lighting that appeared to be runway centerline lights were in view and green high-speed turnoff lights were observed further down the runway.

The airplane touched down at about 140 knots, with a "normal sink rate" and about 3 degrees of pitch. As the first officer deployed the thrust reversers, the captain realized they landed on taxiway Zulu, and he took control of the airplane. The captain taxied the airplane to the gate without incident.

The first officer additionally stated that this was his first approach to runway 29.

According to a Federal Aviation Administration (FAA) inspector, the airplane touched down near the intersection of Taxiway Romeo. The inspector additionally reported that all lighting systems for runway 29 and taxiway Zulu were illuminated and operating normally.

## PERSONNEL INFORMATION

The captain held an airline transport pilot certificate with a rating for airplane multiengine land. The captain held type ratings in Boeing 727, 737, 757, and 767 airplanes. The operator reported that the captain had accumulated about 24,000 hours of total flight experience, which included 34 hours in the Boeing 757.

The captain's most recent Federal Aviation Administration (FAA) first class medical certificate was issued on May 3, 2006.

The first officer held an airline transport pilot certificate with a rating for airplane multiengine land, and a flight instructor certificate with ratings for airplane single-engine land, airplane multiengine land, and instrument airplane. The first officer also held type ratings in the Boeing 747-400, 757, and 767. The operator reported that the first officer had accumulated about 6,202 hours of total flight experience, which included 388 hours in the Boeing 757.

The first officer's most recent FAA first class medical certificate was issued on August 16, 2006.

## AIRCRAFT INFORMATION

The airplane was maintained under a continuous airworthiness inspection program, and had accumulated about 45,731 total hours of operation, at the time of the incident.

## METEOROLOGICAL INFORMATION

The weather reported at 1751, included wind from 280 degrees at 25 knots, gusting to 34 knots, 10 statute miles visibility, and a broken ceiling at 7,000 feet.

A review of the U.S. Naval Observatory Sun and Moon Data for Newark, New Jersey, at the time of the incident revealed a, "waxing crescent with 37-percent of the moon's visible disk illuminated." Sunset occurred at 1826.

## AIRPORT INFORMATION

Runway 29 was a 6,800 foot-long, 150 foot-wide asphalt runway, equipped with high-intensity runway edge lights (HIRL), which can be set on step 1 to 5 (brightest). At the time of the incident, the HIRL was set on step 1. Runway 29 also had centerline lights (CL), and runway end identifier lights (REIL). The runway 29 REILs were on and visually confirmed by the tower supervisor after the incident.

Runway 29 was also equipped with a precision approach path indicator (PAPI), which was located on the right side of the runway, as described on the airport information page associated with the instrument procedures for EWR.

Taxiway Zulu was a 75-foot-wide concrete taxiway, aligned parallel, and to the right of runway 29. The taxiway had green centerline lights, which could be set according to a 5-step system (step 5 being the brightest). At the time of the incident, the taxiway lights were set on step 3. Blue reflective markers defined the edges of taxiway Zulu.

## AIR TRAFFIC CONTROL

According to air traffic control (ATC) recordings provided by the FAA:

At 1826:18, the flight crew stated, "Newark tower good evening continental eighteen eighty-three we are over teterboro for runway 22 left circle runway 29."

The tower controller responded, "eighteen eighty-three in trail of an embraer jet at the marker make short approach runway 29 clear to land wind 270 at 17."

At 1826:39, the flight crew stated, "two nine clear to land runway two continental eighteen eighty-three."

During the following minute, the tower controller gave the winds as "two seven zero at one six, and then two seven zero at one niner."

At 1832:07, the flight crew stated, "eighteen eighty-three is clear." The tower controller responded, "continental eighteen eighty-three what's your position?" The flight crew stated, "we are clear off to the west here on zulu."

The tower controller then cleared the flight crew "all the way to the end and hold short runway two nine at romeo-mike."

At 1839, a Port Authority of New York/New Jersey (PANYNJ) representative called the tower supervisor and advised that an aircraft landed on taxiway Zulu (the PANYNJ office was located 400 feet from taxiway Zulu, facing the airport). The tower supervisor notified the Continental ramp controller of the possible pilot deviation and requested the pilot of flight 1883 contact the tower.

At 1921, the pilot of flight 1883 called the tower and the tower supervisor advised the pilot "you may have landed on taxiway Zulu." The pilot responded, "it appears as though I did."

## FLIGHT RECORDERS

The flight data recorder (FDR) was removed from the airplane and sent to the National Transportation Safety Board's Vehicle Recorder Division in Washington, D.C. The recorder was subsequently downloaded, and contained approximately 58 hours of data. Two flights were recorded after the event flight, and its duration was approximately 1 hour and 52 minutes.

Review of the FDR data revealed that the airplane flew to the west of EWR and approached the airport from the north, turning to line up on a 230-degree heading about 1826:30. The airplane remained on that heading for about 2 minutes during which, the wind speed and direction as recorded by the FDR was approximately 40 knots at 260 degrees. The airplane executed a left turn and remained at a heading of about 198 degrees for one minute. The airplane made a right turn and slight correction back to the left when reaching a heading of about 283 degrees at 1830:46. The airplane was less than 400 feet above ground level and continued to make some heading adjustments. About 40 seconds later, at 1831:27, the airplane's squat switch indicated 'ground' and the airspeed registered 130 knots.

## TEST AND RESEARCH

A representative of the PANYNJ reported that 3 minutes after the airplane landed on taxiway Zulu, the taxiway and runway lighting inspection was conducted, with no anomalies noted. All inspections were complete and reported to the Newark Control Tower Supervisor by 1842.

After the incident, representatives from the PANYNJ, Continental Airlines, and the Safety Board, observed the runway 29/taxiway Zulu lighting, while on a local flight around the airport. A circle-to-land approach to runway 29 was conducted, simulating the incident flight. The runway 29 and taxiway lights were set to the same steps as during the event flight.

In addition, during the approach, it was noted that taxiway Zulu appeared slightly brighter than the runway when set to the same setting as the event flight. However, the REILs, and PAPI were clearly visible to identify the runway. Additionally, the color difference (green taxiway centerline lights versus white runway centerline and edge lights) were also clearly visible.

## ADDITIONAL INFORMATION

According to a representative of the PANYNJ, six aircraft made the same approach, within 10 minutes of the incident aircraft, and landed successfully on the runway.

### Post-Incident Safety Changes

As a result of the incident, the PANYNJ, in conjunction with the FAA, increased the runway 29 lights to step 3, and the taxiway Zulu lights were decreased to step 2.

Additionally, on December 1, 2006, the runway 29 Area Navigation (RNAV) Transition Procedure was approved by the FAA for Continental Airlines. The RNAV Procedure consisted of two separate Arrivals: GIMEE 19-7-1 from the North and GRITY 19-7-1A from the South.

The RNAV was developed to provide more precise lateral and longitudinal navigation guidance, and thus more complete use of available airspace. This method of navigation alleviated the requirement of a track directly to or from any specific radio navigation aid.

### Pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	56,Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Glider	<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 With waivers/limitations	<b>Last FAA Medical Exam:</b>	May 1, 2006
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	October 1, 2006
<b>Flight Time:</b>	24000 hours (Total, all aircraft), 34 hours (Total, this make and model), 13200 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 34 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

### Co-pilot Information

<b>Certificate:</b>	Airline transport; Flight instructor	<b>Age:</b>	40,Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<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>	Airplane multi-engine; Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 With waivers/limitations	<b>Last FAA Medical Exam:</b>	August 1, 2006
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	September 1, 2006
<b>Flight Time:</b>	6202 hours (Total, all aircraft), 388 hours (Total, this make and model), 1559 hours (Pilot In Command, all aircraft), 162 hours (Last 90 days, all aircraft), 73 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>	N17105
<b>Model/Series:</b>	757-224	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	27295
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	175
<b>Date/Type of Last Inspection:</b>	October 1, 2006 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	2133000 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Turbo jet
<b>Airframe Total Time:</b>	45731 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Rolls-Royce
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	RB211-535E4
<b>Registered Owner:</b>	Wells Fargo Bank	<b>Rated Power:</b>	42700 Lbs thrust
<b>Operator:</b>	CONTINENTAL AIRLINES INC	<b>Operating Certificate(s) Held:</b>	Flag carrier (121)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	CALA

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Night
<b>Observation Facility, Elevation:</b>	EWR, 18 ft msl	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	17:51 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 7000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	25 knots / 34 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	280°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.2 inches Hg	<b>Temperature/Dew Point:</b>	13°C / 4°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Orlando, FL (MCO )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Newark, NJ (EWR )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	16:40 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Newark International Airport EWR	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>		<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	29	<b>IFR Approach:</b>	Circling
<b>Runway Length/Width:</b>	6800 ft / 150 ft	<b>VFR Approach/Landing:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	6 None	<b>Aircraft Damage:</b>	None
<b>Passenger Injuries:</b>	148 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	154 None	<b>Latitude, Longitude:</b>	40.692501,-74.168609

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Andrews, Jill
<b>Additional Participating Persons:</b>	Vince Brisco; FAA/FSDO; Teterboro, NJ Toby Carroll; Continental Airlines; Houston, TX Jim Keane; Port Authority NY/NJ; Newark, NJ
<b>Original Publish Date:</b>	March 31, 2008
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=64778">https://data.nts.gov/Docket?ProjectID=64778</a>

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