



# Aviation Investigation Final Report

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<b>Location:</b>	Seattle, Washington	<b>Incident Number:</b>	SEA03IA046
<b>Date &amp; Time:</b>	March 14, 2003, 16:20 Local	<b>Registration:</b>	N298AA
<b>Aircraft:</b>	Boeing DC-9-82	<b>Aircraft Damage:</b>	None
<b>Defining Event:</b>		<b>Injuries:</b>	111 None
<b>Flight Conducted Under:</b>	Part 121: Air carrier - Scheduled		

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## Analysis

Initially the flight crew planned to execute the visual approach to Runway 16 Right backed up by the ILS, but because there was a ceiling over the final approach course, they were advised to expect the ILS. The flight was then vectored to a 15 mile final and cleared for the ILS approach. About four to five miles from the end of the runway, at about 3,500 feet above the ground (AGL), the flight crew passed through the cloud deck, made visual contact with the runway environment, and transitioned to visual navigation. According to the information collected from the flight data recorder, the aircraft started a constant-rate deviation to the right of the localizer approximately the same time as it broke out of the clouds. During this deviation the flight crew maintained a heading that was taking them directly to the "approach end" of Taxiway Charlie. Neither the Captain nor the First Officer were aware they were lined up on the taxiway, and they did not know they had landed on the taxiway until advised by the tower. A rain shower had recently moved through the area, and although there was an overcast over the center and north end of the airport, south of the field rays of sunlight were shining through holes in the clouds, resulting in a degradation of the visual clues that would normally help the flight crew differentiate between the runway and the taxiway.

## 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. Factors include sun glare from the wet paved surfaces, and a visual illusion created by the airport surface environment.

## Findings

Occurrence #1: MISCELLANEOUS/OTHER

Phase of Operation: LANDING

### Findings

1. (C) WRONG RUNWAY - INADVERTENT USE - FLIGHTCREW
2. (F) VISUAL ILLUSION - FLIGHTCREW
3. (F) AIRPORT FACILITIES, RUNWAY/LANDING AREA CONDITION - WET
4. (F) LIGHT CONDITION - SUNGLARE

## Factual Information

On March 14, 2003, at 1620 Pacific standard time, an American Airlines DC-9-82, N298AA, landed on Taxiway Charlie at Seattle-Tacoma International Airport, Seattle, Washington. There were no injuries to the flight crew, the cabin crew, or any of the 105 passengers. The aircraft, which is owned and operated by American Airlines, Inc., was not damaged. All occupants exited the aircraft at the passenger terminal using normal means. The 14 CFR Part 121 scheduled domestic passenger flight, which departed Dallas-Fort Worth Airport at 1435 central standard time, was being operated in visual meteorological conditions at the time of the incident.

At the time the aircraft arrived in the area adjacent to Mount Rainer, the Bay Visual Approach was in effect, and according to American Airlines, during his pre-landing flight crew briefing, the Captain stated that he intended to execute the visual approach backed up by the ILS to Runway 16 Right. Because there was a ceiling over the final approach course, while the flight was tracking to the north on the east side of the airport, they were advised by the approach controller to expect the ILS to Runway 16 Right. The flight was then vectored to a 15 mile final and cleared for the ILS approach. About four to five miles from the end of the runway, at about 3,500 feet above the ground (AGL), the flight crew passed through the cloud deck, made visual contact with the runway environment, and transitioned to visual navigation. According to the information collected from the flight data recorder immediately after the event, the aircraft started a constant-rate deviation to the right of the localizer approximately the same time as the aircraft passed 3,500 feet AGL. This deviation was the result of the flight crew maintaining a heading between 153 degrees and 156 degrees magnetic, which was taking them directly to the "approach end" of Taxiway Charlie. Neither the Captain nor the First Officer were aware they were lined up on the taxiway, and they did not know they had landed on the taxiway until advised by the tower. A rain shower had recently moved through the area, and although there was an overcast over the center and north end of the airport, south of the field rays of sunlight were shining through holes in the clouds, resulting in a glare from the wet paved surfaces.

During the investigation it was determined that during the four years prior to this event, there had been one other reported landing on Taxiway Charlie, and two reported instances where flight crews had lined up on the taxiway, but on short final had either executed a go-around or sidestepped to Runway 16 right. In May of 2000, the airport installed an "X" (about 12 feet across) about 150 feet off the north end of Taxiway Charlie, but the subject crew did not detect it on this approach. It was also noted that since January of 2001, there has been an entry in the United States Government Airport Facility Directory stating, "Do not mistake Txy C for a landing surface."

## Pilot Information

<b>Certificate:</b>	Airline transport; Flight engineer	<b>Age:</b>	46, Male
<b>Airplane Rating(s):</b>	Multi-engine land	<b>Seat Occupied:</b>	Left
<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>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 None	<b>Last FAA Medical Exam:</b>	February 27, 2003
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	September 4, 2001
<b>Flight Time:</b>	3372 hours (Total, this make and model)		

## Co-pilot Information

<b>Certificate:</b>	Airline transport; Flight engineer	<b>Age:</b>	51, Male
<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>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 None	<b>Last FAA Medical Exam:</b>	April 5, 2003
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	8521 hours (Total, this make and model)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Boeing	<b>Registration:</b>	N298AA
<b>Model/Series:</b>	DC-9-82	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	49310
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	136
<b>Date/Type of Last Inspection:</b>	March 11, 2003 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	150500 lbs
<b>Time Since Last Inspection:</b>	27 Hrs	<b>Engines:</b>	2 Turbo fan
<b>Airframe Total Time:</b>	51944 Hrs at time of accident	<b>Engine Manufacturer:</b>	Pratt & Whitney
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	JT8D-217C
<b>Registered Owner:</b>	American Airlines	<b>Rated Power:</b>	20850 Lbs thrust
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	Flag carrier (121)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	AAL

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KSEA	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	15:56 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Scattered / 3000 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 6000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	4 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	180°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.52 inches Hg	<b>Temperature/Dew Point:</b>	12°C / 7°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Dallas-Ft Worth, TX (DFW )	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Seattle, WA (SEA )	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	14:35 Local	<b>Type of Airspace:</b>	Class D

## Airport Information

<b>Airport:</b>	Seattle-Tacoma International SEA	<b>Runway Surface Type:</b>	Concrete
<b>Airport Elevation:</b>	429 ft msl	<b>Runway Surface Condition:</b>	Wet
<b>Runway Used:</b>	T/W	<b>IFR Approach:</b>	ILS;Visual
<b>Runway Length/Width:</b>	9425 ft / 180 ft	<b>VFR Approach/Landing:</b>	Full stop

## Wreckage and Impact Information

<b>Crew Injuries:</b>	6 None	<b>Aircraft Damage:</b>	None
<b>Passenger Injuries:</b>	105 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	111 None	<b>Latitude, Longitude:</b>	47.44889,-122.309448

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Anderson, Orrin
<b>Additional Participating Persons:</b>	Eugene Beauchemin; Seattle CMO
<b>Original Publish Date:</b>	April 28, 2004
<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=56644">https://data.nts.gov/Docket?ProjectID=56644</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).