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## Runway overrun, Douglas DC-9-32, February 28, 1996

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**Micro-summary:** This Douglas DC-9-32 overran the runway on landing.

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**Event Date:** 1996-02-28 at 1645 EST


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

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

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1. Accident reports can be and sometimes are revised. Be sure to consult the investigative agency for the latest version before basing anything significant on content (e.g., thesis, research, etc).
  2. Readers are advised that each report is a glimpse of events at specific points in time. While broad themes permeate the causal events leading up to crashes, and we can learn from those, the specific regulatory and technological environments can and do change. ***Your company's flight operations manual is the final authority as to the safe operation of your aircraft!***
  3. Reports may or may not represent reality. Many many non-scientific factors go into an investigation, including the magnitude of the event, the experience of the investigator, the political climate, relationship with the regulatory authority, technological and recovery capabilities, etc. It is recommended that the reader review all reports analytically. Even a "bad" report can be a very useful launching point for learning.
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		NTSB ID: ATL961A056		Aircraft Registration Number: N936VV	
		Occurrence Date: 02/28/1996		Most Critical Injury: None	
		Occurrence Type: Incident		Investigated By: NTSB	
Location/Time					
Nearest City/Place SAVANNAH	State GA	Zip Code 31402	Local Time 1645	Time Zone EST	
Airport Proximity: On Airport		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer McDonnell Douglas		Model/Series DC-9-32		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 28, 1996, at 1645 eastern standard time, a McDonnell Douglas DC-9-32 N936VV, operated as ValuJet flight 524, rolled off the departure end of runway 36 during a full stop landing at the Savannah international airport in Savannah, Georgia. The scheduled, domestic, passenger flight operated under the provisions of Title 14 CFR Part 121 and instrument flight rules. Visual weather conditions prevailed at the time of the incident. The airplane was not damaged, and none of the flight crew or passengers on board the flight were injured. The flight departed Atlanta, Georgia, at 1555.</p> <p>Upon arriving in Savannah, Savannah Approach issued the flight vectors for a visual approach to runway 36. The flight crew used the ILS runway 36 approach procedure as a backup for the visual approach. According to the captain, the before landing checklist was completed as the airplane turned onto the base leg of the traffic pattern. All aircraft systems were operational for the landing, and wing flaps were lowered to 50 degrees. According to the flight crew, when the airplane was 600 feet above the ground, it was on the glide slope and on course; the indicated airspeed was Vref +10.knots until the airplane reached the runway threshold.</p> <p>According to the flight crew, as the airplane reached the runway threshold, the first officer initiated a flare and power reduction from the stabilized approach. The airplane "floated" longer than anticipated and touched down approximately 2,500 feet from the threshold of the 7,003 foot long concrete runway. The first officer, who was flying the airplane, applied normal braking, but the airplane did not decelerate as expected. When the captain realized that the airplane was not decelerating, he took the flight controls and applied heavy braking; again, there was no noticeable deceleration. The airplane rolled off the departure end of runway 36 and stopped in approximately a foot of mud; the runway surface was dry.</p> <p>AIRCRAFT INFORMATION</p> <p>Information on the airplane is included in this report on page 2 of this factual report under the data field labeled "Aircraft Information".</p> <p>PERSONNEL INFORMATION.</p> <p>Information about the flight crew included in this document on page 3 of the factual report under the data field labeled "First Pilot Information". The captain was hired by ValuJet on July 7, 1994, as a captain on DC-9 airplanes. The first officer was hired on October 2, 1995 as a DC-9 first officer. According to ValuJet officials the flight crew had completed all pre-employment requirements. The captain held an airline transport pilot (ATP) certificate with a multiengine land DC-9 type rating, According to the pilot's records, the captain had accumulated a total of 2,141</p>					
FACTUAL REPORT - AVIATION					
					Page 1

National Transportation Safety Board

## FACTUAL REPORT

AVIATION

NTSB ID: ATL96IA056

Occurrence Date: 02/28/1996

Occurrence Type: Incident

## Narrative (Continued)

flight hours in the DC-9 of which 1087 flight hours were as a captain or pilot-in command. The first officer had accumulated a total of 5,200 flight hours of which 275 flight hours were in the DC-9 as a first officer. A review of flight operations information on the flight crew disclosed that the captain completed Crew Resource Management (CRM) training at his previous employer, Eastern Airlines. The first officer had completed CRM training at ValuJet Airlines. ValuJet flight training and CRM training were conducted at the Flight Safety International training facility in Miami, Florida. There was no record of the flight crew flying together before this flight.

## METEOROLOGICAL INFORMATION

Visual weather conditions prevailed at the time of the incident. Weather information is contained in this document on page 3 of the factual report under the data field labeled "Weather Information." The prevailing winds at the time of the incident were out of the west at 8 knots. The active runway was 36.


## WRECKAGE AND IMPACT INFORMATION.


The aircraft was not damaged. The airplane was recovered from the mud without additional airframe damage. The examination of the airframe also failed to disclose a mechanical problem or malfunction of an aircraft system.

## ADDITIONAL INFORMATION

Examination of the Digital Flight Data Recorder (DFDR) disclosed that the recorded data characteristics for cruise flight and normal landing were consistent with the incident landing data. A review of the landing data revealed that the airplane touched down at 127 knots indicated airspeed. After touchdown, the airplane rolled 2500 feet before coming to a full stop 43 seconds later. Approximately, eight seconds before the airplane came to a complete stop. ). The DFDR data also showed a uniform decrease in airspeed as the airplane decelerated to a complete stop. At Subframe Reference Number 2273, the DFDR recorded relatively large and rapid fluctuations in the aircraft vertical acceleration. The vertical acceleration at this point in the landing roll is consistent with the airplane rolling off the paved runway surface onto rougher terrain (see attached Digital Flight Data Recorder Study).

According to the ValuJet DC-9 flight manual, the target touchdown point on the runway surface is 1000 feet from the runway threshold (see attached excerpts from airlines operation manual and the aircraft flight manual). A witness, located adjacent to the landing runway, reported that the flight touched down approximately 4000 foot from the threshold. According the DC-9 landing data card for 92,000 pounds landing weight, with 50 degrees of wing flaps, the landing airspeed should be 127 knots.

 <b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b>		NTSB ID: ATL961A056			
		Occurrence Date: 02/28/1996			
		Occurrence Type: Incident			
<b>Landing Facility/Approach Information</b>					
Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
SAVANNAH INTERNATIONAL	SAV	51 Ft. MSL	36	7003	150
Runway Surface Type: Concrete					
Runway Surface Condition: Dry					
Type Instrument Approach: NONE					
VFR Approach/Landing: Full Stop					
<b>Aircraft Information</b>					
Aircraft Manufacturer		Model/Series		Serial Number	
McDonnell Douglas		DC-9-32		47397	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 120	Certified Max Gross Wt.	105000 LBS	Number of Engines: 2	
Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:		
Turbo Fan	P&W	JT8D-9A	14500 LBS		
- Aircraft Inspection Information					
Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time		
Continuous Airworthiness	02/1996	5 Hours	52401 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?	ELT Operated?	ELT Aided in Locating Accident Site?			
<b>Owner/Operator Information</b>					
Registered Aircraft Owner		Street Address			
VALUJET AIRLINES INC.		1800 PHOENIX BLVD STE 126			
		City	State	Zip Code	
		ATLANTA	GA	30349	
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:			Operator Designator Code: VJ6A		
- 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					

 <p><b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b></p>	NTSB ID: ATL96IA056
	Occurrence Date: 02/28/1996
	Occurrence Type: Incident

**First Pilot Information**

Name On File	City On File	State On File	Date of Birth On File	Age 42
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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

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	12572	2141	4289	7903	1520	1100	187			
Pilot In Command(PIC)	10468	1080								
Instructor										
Last 90 Days	256	256		256						
Last 30 Days	95	95		95						
Last 24 Hours	5	5		5						

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 ATLANTA	State GA	Airport Identifier ATL	Departure Time 1555	Time Zone EST
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Destination Same as Accident/Incident Location	State	Airport Identifier SAV	
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Type of Clearance: IFR

Type of Airspace: Class C

**Weather Information**

Source of Briefing:  
Company

Method of Briefing:

 <b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b>	NTSB ID: ATL96IA056
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<b>Weather Information</b>					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
SAV	1650	EST	51 Ft. MSL	1 NM	360 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			1000 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: Overcast		1200 Ft. AGL		Visibility: 10 SM	Altimeter: 29.00 "Hg
Temperature: 19 °C	Dew Point: 18 °C	Wind Direction: 260		Density Altitude: 250 Ft.	
Wind Speed: 8	Gusts:	Weather Conditions at Accident Site: Visual Conditions			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	Intensity of Precipitation: Unknown			
Restrictions to Visibility: None					
Type of Precipitation: None					

<b>Accident Information</b>		
Aircraft Damage: None	Aircraft Fire: None	Aircraft Explosion: None

Classification: U.S. Registered/U.S. Soil					
<b>- Injury Summary Matrix</b>	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				75	75
- TOTAL ABOARD -				80	80
Other Ground	0	0	0		0
- GRAND TOTAL -	0	0	0	80	80

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National Transportation Safety Board

**FACTUAL REPORT**

**AVIATION**



NTSB ID: ATL96IA056

Occurrence Date: 02/28/1996

Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

PHILLIP POWELL

Additional Persons Participating in This Accident/Incident Investigation:

BOB BRUCE  
GEORGIA FSDO  
COLLEGE PARK, GA