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## **In-flight upset due to unexpected seat movement, McDonnell Douglas MD-11, June 29, 1994**

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**Micro-summary:** The unexpected movement of the first officer's seat by the other pilot caused the control column to be moved, the autopilot disconnected, a violent upset, and injuries to the airplane's occupants.

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**Event Date:** 1994-06-29 at 0023 EDT


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

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

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  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!***
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		NTSB ID: MIA94FA169		Aircraft Registration Number: N1752K	
		Occurrence Date: 06/29/1994		Most Critical Injury: Serious	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place CARIBBEAN		State CB	Zip Code	Local Time 0023	Time Zone EDT
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer MCDONNELL DOUGLAS			Model/Series MD-11		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 THE FLIGHT</p> <p>On June 29, 1994, about 0023 eastern daylight time, a McDonnell-Douglas MD-11, N1752K, registered to American Airlines, Inc., operating as American Airlines flight 901, experienced altitude deviation in cruise flight over the Caribbean Sea just south of the Cuban coast, resulting in injuries to passengers and crew. The flight was a 14 CFR Part 121 scheduled international passenger flight from Miami, Florida, to Buenos Aires, Argentina. Visual meteorological conditions prevailed at the time and an instrument flight rules flight plan was filed. The airplane received minor damage. One passenger and 1 flight attendant received serious injuries, 12 passengers and 3 flight attendants received minor injuries, and 67 passengers and 10 flight attendants were not injured. The airline transport-rated captain, first officer, and reserve first officer were not injured. The flight originated at Miami, Florida, on June 28, 1994, at 2333.</p> <p>The flightcrew stated the captain was in the main cabin taking a rest period. They were in cruise flight and the seatbelt sign was off. Passengers had been requested to keep their seatbelts on when seated. The reserve first officer occupied the captain's seat and the regular first officer was flying the airplane from the right seat. A flight attendant entered the cockpit with a container of beverages. The reserve first officer instructed her to place the container on the footrest of the center observer's seat.</p> <p>The reserve first officer noticed the flight attendant was having trouble doing this and realized the first officer's seat was in the way. The reserve first officer reached across the cockpit and activated the horizontal movement switch of the first officer's seat, without his knowledge, to move it forward out of the flight attendant's way. The first officer had his legs crossed behind the control column and as his seat was moved forward his legs pushed forward on the column. The autopilot turned off and the aircraft responded to the forward control column input and nosed down. The first officer then took the aircraft controls and returned the aircraft to level flight.</p> <p>The captain returned to the cockpit and the flight attendants reported that some unrestrained passengers and flight attendants had been injured when the aircraft nosed over. The captain instructed the first officer to continue toward Kingston, Jamaica for a possible landing. The captain contacted American Airlines flight dispatch and it was determined that emergency assistance was not available in Kingston, for they could not reach anyone on the phone. The captain then elected to return to Miami, Florida, where the aircraft landed at 0205.</p>					
PERSONNEL INFORMATION					
Information on the three flight crewmembers is contained in this report under Pilot Information, and in attachments to this report.					
FACTUAL REPORT - AVIATION					

National Transportation Safety Board

## FACTUAL REPORT

AVIATION

NTSB ID: MIA94FA169

Occurrence Date: 06/29/1994

Occurrence Type: Accident

## Narrative (Continued)

## AIRCRAFT INFORMATION

Information on the aircraft is contained in this report under Aircraft Information.

## METEOROLOGICAL INFORMATION

Visual meteorological conditions prevailed at the time of the accident. Additional meteorological information is contained in this report under Weather Information, and in attachments to this report.

## FLIGHT RECORDERS

The cockpit voice recorder continued to operate after the accident and recordings for the time of the accident were recorded over after thirty minutes.

Readout and evaluation of the digital flight data recorder from N1752K was performed by Thomas R. Jacky, Aerospace Engineer, NTSB, Washington, D.C. Readout information indicated the aircraft was at an altitude of 33,000 feet, on a heading of 159 degrees, and at position of 20.58 degrees north and 78.50 degrees west, at the time of the accident. About 800 feet of altitude was lost during the nose over and the occupants were subjected to a minimum of -0.37 G's and a maximum of +1.85 G's. See attached Factual Report of Investigation Digital Flight Data Recorder.


## MEDICAL AND PATHOLOGICAL INFORMATION


One passenger received serious internal injuries as a result of the altitude deviation. One flight attendant received a serious rib injury as a result of the altitude deviation. The remainder of the passengers and flight attendants who reported injuries sustained minor cut, contusion, and strain injuries.

About 5 hours after the accident the three flight members submitted to toxicology testing in accordance with the American Airlines drug and alcohol testing program. The tests were negative for drugs and alcohol. (See attached toxicology reports.)

## ADDITIONAL INFORMATION

The aircraft was released to American Airlines on June 29, 1994, at 0530. The flight data recorder and cockpit voice recorder, which was retained by NTSB after the accident, was returned to American Airlines in September 1994.

 <b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b>		NTSB ID: MIA94FA169			
		Occurrence Date: 06/29/1994			
		Occurrence Type: Accident			
<b>Landing Facility/Approach Information</b>					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Type Instrument Approach:					
VFR Approach/Landing: None					
<b>Aircraft Information</b>					
Aircraft Manufacturer MCDONNELL DOUGLAS		Model/Series MD-11		Serial Number 48421	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 289	Certified Max Gross Wt.	618000 LBS	Number of Engines: 3	
Engine Type: Turbo Fan	Engine Manufacturer: GE	Model/Series: CF680C2D-1F	Rated Power: 61500 LBS		
- Aircraft Inspection Information					
Type of Last Inspection AAIP	Date of Last Inspection	Time Since Last Inspection Hours	Airframe Total Time 12522 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? Yes	ELT Operated? No	ELT Aided in Locating Accident Site?			
<b>Owner/Operator Information</b>					
Registered Aircraft Owner AMERICAN AIRLINES, INC.		Street Address P.O. BOX 619616			
		City DFW AIRPORT	State TX	Zip Code 75216	
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:			Operator Designator Code: AALA		
- 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; International; Passenger Only					
FACTUAL REPORT - AVIATION					

 <p><b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b></p>	NTSB ID: MIA94FA169
	Occurrence Date: 06/29/1994
	Occurrence Type: Accident

**First Pilot Information**

Name On File	City On File	State On File	Date of Birth On File	Age 58
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Sex: M	Seat Occupied: Rear	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--w/ waivers/lim.	Date of Last Medical Exam: 02/1994
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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	20000	800								
Pilot In Command(PIC)										
Instructor										
Last 90 Days										
Last 30 Days	64	64		64						
Last 24 Hours	3	3		3						

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

Type of Flight Plan Filed: IFR

Departure Point MIAMI	State FL	Airport Identifier KMIA	Departure Time 2333	Time Zone EDT
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Destination BUENOS AIRES	State OF	Airport Identifier SAEZ	
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Type of Clearance: IFR

Type of Airspace: Class E

**Weather Information**

Source of Briefing: Commercial Weather Service

Method of Briefing:

 <b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b>	NTSB ID: MIA94FA169
	Occurrence Date: 06/29/1994
	Occurrence Type: Accident

<b>Weather Information</b>					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
MKJ	0100	EDT	10 Ft. MSL	200 NM	160 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			2200 Ft. AGL	Condition of Light: Night/Dark	
Lowest Ceiling: None		0 Ft. AGL	Visibility: 7	SM	Altimeter: 29.00 "Hg
Temperature: 28 °C	Dew Point: 23 °C	Wind Direction: Variable		Density Altitude: 1000 Ft.	
Wind Speed: Light and Variable	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: Minor	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		1	3	10	14
Other Crew				1	1
Passengers		1	12	67	80
- TOTAL ABOARD -		2	15	80	97
Other Ground	0	0	0		0
- GRAND TOTAL -	0	2	15	80	97

National Transportation Safety Board

**FACTUAL REPORT**

**AVIATION**



NTSB ID: MIA94FA169

Occurrence Date: 06/29/1994

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

JEFFREY L. KENNEDY

Additional Persons Participating in This Accident/Incident Investigation:

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