Uncommanded roll to the left, Boeing 737-3B7, August 5, 1995

Micro-summary: Uncommanded roll to the left during descent for this Boeing 737-3B7.

Event Date: 1995-08-05 at 1000 EDT

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

Investigative Body's Web Site: http://www.ntsb.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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National Transportation Safety Board NTSB ID: MIA95IA194 Aircraft Registration Number: N396US FACTUAL REPORT Occurrence Date: 08/05/1995 Most Critical Injury: None Occurrence Type: Incident Investigated By: NTSB ETYBO Location/Time Nearest City/Place State Zip Code Local Time Time Zone NC 28208 1000 **EDT** CHARLOTTE Distance From Landing Facility: Direction From Airport: Airport Proximity: Off Airport/Airstrip Aircraft Information Summary Aircraft Manufacturer Model/Series Type of Aircraft Boeing 737-3B7 Airplane

Air Medical Transport Flight: No

Narrative

Sightseeing Flight: No

Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:

On August 5, 1995, about 1000 eastern daylight time, a Boeing 737-3B7, N396US, operated by USAir, Inc., as flight 7, a 14 CFR Part 121 domestic passenger flight from Albany, New York, to Charlotte, North Carolina, had an uncommanded roll to the left while descending to land at Charlotte. Visual meteorological conditions prevailed at the time and an instrument flight rules flight plan was filed. The aircraft was not damaged and the airline transport-rated pilot, first officer, 3 flight attendants, and 78 passengers were not injured. The flight originated from Albany, New York, on August 5, 1995, about 0833.

The captain stated that during descent through 12,000 feet at 250 knots airspeed, the "A" autopilot system was on LNAV and level change. The aircraft shuttered and then rolled to the left to a 30-degree bank angle. He disengaged the autopilot and rolled the aircraft level. The flight was continued with the autopilot off.

Postincident investigation revealed the "LO" side of the roll sensor excitation from the "A" autopilot system flight control computer (FCC) to the "A" aileron autopilot actuator LVDT and "A" airleron postion sensor was intermittently open due to a socket pushed out of the locked position in the connector. Intermittent contact of this socket with its pin in the connector could cause airplane roll oscillations. The "A" system FCC had been removed and reinstalled the day before the incident to inspect the connectors for contamination. See attached Boeing Commercial Airplane Company report.

National Transportation Safety Board
FACTUAL REPORT
AVIATION

NTSB ID: MIA95IA194

Occurrence Date: 08/05/1995

| FACIUAL REPORT | Occur | rence Date. | 08/05/1995 | | | | | | | | | |
|--|-----------------------------------|--|-------------------------|-------|----------------|----------------|---------------------|------------------------|-----------------|--|--|--|
| AVIATION | Occur | rence Type: | Incident | | | | | _ | _ | | | |
| Landing Facility/Approach Information | | | | | | | | | | | | |
| Airport Name | Airport ID: | Airport Eleva | vation Runw | | way Used | way Used Runwa | | h Ri | unway Width | | | |
| | | Ft. | Ft. MSL 0 | | | | | | | | | |
| Runway Surface Type: | • | | | | | | | | • | | | |
| Runway Surface Condition: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Type Instrument Approach: | | | | | | | | | | | | |
| VFR Approach/Landing: | | | | | | | | | | | | |
| Aircraft Information | | | | | | | | | | | | |
| Aircraft Manufacturer | | Model/ | | | erial Number | | | | | | | |
| Boeing | | 737-3 | B <i>1</i> | | | | | 2331 | 3 | | | |
| Airworthiness Certificate(s): Transport | | | | | | | | | | | | |
| Landing Gear Type: Retractable - Tricycle | | | | | | | | | | | | |
| Homebuilt Aircraft? No Number of Seats: | 149 | Certifie | Certified Max Gross Wt. | | | | | Numbe | r of Engines: 2 | | | |
| Engine Type: Turbo Fan | Engine Ma GE | Engine Manufacturer: Model/Series: CFM56-3 | | | | | | Rated Power: 22000 LBS | | | | |
| - Aircraft Inspection Information | | | | | | | | | | | | |
| Type of Last Inspection | Date of Last Inspection Time Si | | | | nce Last Inspe | ection | Airframe Total Time | | | | | |
| AAIP | 08/1995 | | 11 H | | 27857 Hours | | | | | | | |
| - Emergency Locator Transmitter (ELT) Information | | | | | | | | | | | | |
| ELT Installed? Yes ELT Operate | ed? No | | | Site? | | | | | | | | |
| Owner/Operator Information | | | | | | | | | | | | |
| Registered Aircraft Owner | Street Address 900 EUCLID AVENUE | | | | | | | | | | | |
| SOCIETY NATIONAL BANK | City | | | | | | | | Zip Code | | | |
| | | CLEVEL | ОН | 44101 | | | | | | | | |
| Operator of Aircraft | Street Address 2345 CRYSTAL DRIVE | | | | | | | | | | | |
| USAIR | City | | | | | | | State | Zip Code | | | |
| OOAIIC | ARLINGTON | | | | | | | VA | 22227 | | | |
| Operator Does Business As: Operator Designator Code: (| | | | | | | | | | | | |
| - Type of U.S. Certificate(s) Held: | | | | | | | | | | | | |
| Air Carrier Operating Certificate(s): Flag Carrier/Don | nestic | | | | | | | | | | | |
| Operating Certificate: | Operator C | Certifica | nte: | | | | | | | | | |
| Regulation Flight Conducted Under: Part 121: Air Carrier | | | | | | | | | | | | |
| Type of Flight Operation Conducted: Scheduled; Dor | nestic; | Passenger | Only | | | | | | | | | |
| | | | | | | | | | | | | |

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: MIA95IA194

Occurrence Date: 08/05/1995

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|--|-----------------------------------|--------------|------------------------|---------------------------|--------------|------------|---------------|---|---------------|---------|---------------------|--------------|---------------------|--|--|
| | AVIATI ETYBO | QN | | Occurrent | ce Type: Inc | ident | | | | | | | | | |
| First Pilot | Information | | | | | | | | | | | | | | |
| Name | City | | | | State | e [| Date of Birth | Age | | | | | | | |
| On File | | | | On File | | | | | | On F | File | On File | 40 | | |
| Sex: M | Seat Occupied | n Pilot | | | Ce | rtificate | Numb | er: On File | | | | | | | |
| Certificate(s): Airline Transport; Flight Instructor; Flight Engineer | | | | | | | | | | | | | | | |
| Airplane Ra | ating(s): Multi | i-engine Lar | nd; Single-e | ngine Land | | | | | | | | | | | |
| Rotorcraft/Glider/LTA: Helicopter | | | | | | | | | | | | | | | |
| Instrument Rating(s): Airplane | | | | | | | | | | | | | | | |
| Instructor Rating(s): Airplane Single-engine | | | | | | | | | | | | | | | |
| Type Rating/Endorsement for Accident/Incident Aircraft? Yes Current Biennial Flight Review? | | | | | | | | | | | | | | | |
| Medical Ce | rt.: Class 1 | Medica | al Cert. Status | : Valid Me | dicalno wa | aivers/lin | n. | | Date of La | ast Med | dical Ex | cam: 05/1995 | | | |
| | | | | | | | | | | | | | | | |
| - Flight Tim | e Matrix | All A/C | This Make and Model | Airplane Single Engine | | | Actua | Instrument al Simulated | | R | otorcraft | Glider | Lighter Than Air | | |
| Total Time | | 11300 | | | | | | | | | | | | | |
| Pilot In Con | nmand(PIC) | | | | | | | | | | | | | | |
| Instructor | | | | | | | | | | | | | | | |
| Last 90 Day | /S | | | | | | | | | | | | | | |
| Last 30 Day | /S | | | | | | | | | | | | | | |
| Last 24 Hours | | 5 | 5 | | 5 | <u> </u> | | | | | | | | | |
| Seatbelt Us | ed? Yes | Shou | llder Harness | Used? Yes | | 1 | oxicology P | icology Performed? No Second Pilot? Yes | | | | | s | | |
| El: 1 / DI | // · · | | | | | | | | | | | | | | |
| | n/Itinerary pht Plan Filed: IF | D | | | | | | | | | | | | | |
| Departure F | | N . | | | | Т | State | Airn | ort Identifie | or I | Depart | ture Time | Time Zone | | |
| ALBANY | Onic | | | | | | NY | ALE | | | Departure Time 0833 | | EDT | | |
| Destination | | | | | | | | \(\delta\) irn | ort Identifie | ,, | | | | | |
| Same as Accident/Incident Location | | | | | | | | CLT | | 51 | | | | | |
| Type of Cle | arance: IFR | | | | | | | | | | | | | | |
| Type of Air | space: Class | В | | | | | | | | | | | | | |
| Weather Information | | | | | | | | | | | | | | | |
| Source of Briefing: Company | | | | | | | | | | | | | | | |
| Method of | Briefing: | | | | | | | | | | | | | | |
| | | | | FACTUAL | REPORT - | - AVIA | TION | | | | | | Page 3 | | |
| | | | | | | | | | | | | | | | |

National Transportation Safety Board
FACTUAL REPORT
AVIATION

NTSB ID: MIA95IA194

Occurrence Date: 08/05/1995

Occurrence Type: Incident

| ETYBOR | | | | currence ry | aent | | | | | | | | |
|----------------------------------|---|---------------------|---------------------------------------|-------------|-----------|--------|--------------|----------------|------------|------------------------------|--------------|-----|---|
| Weather Information | | | | | | | | | | | | | |
| WOF ID | Observation Time | Time Zone | WOF E | Elevation | WOI | F Dist | tance From I | Accident | Site | Direction From Accident Site | | | • |
| CLT | 1015 | EDT | 7 | '49 Ft. MSL | _ | | | 4(| 0 NM | | 39 Deg. Mag. | | |
| Sky/Lowes | st Cloud Condition: Scat | | 1000 Ft. | | | | Cor | ndition of L | Ligh | t: Day | | | |
| Lowest Ce | illing: Overcast | 270 | 00 Ft. AGL | V | /isibilit | ty: | 7 | SM A | Altimeter: | | 30.00 | "Hg | |
| Temperatu | ıre: 24 °C | | 2 °C Wi | 230 | | 1 | Den | sity Altitude: | 1000 | Ft. | | | |
| Wind Spee | ed: 6 | | Weather Condtions at Accident Site: \ | | | | | | ndi | tions | | | |
| Visibility (F | Visibility (RVR): 0 Ft. Visibility (RVV) 0 SM Intensity of Precipitation: Unknown | | | | | | | | | | | | |
| Restrictions to Visibility: None | | | | | | | | | | | | | |
| Type of Precipitation: None | | | | | | | | | | | | | |
| Accident Information | | | | | | | | | | | | | |
| Aircraft Dar | Aircr | Aircraft Fire: None | | | | | craft Explo | sion | None | | | | |
| Classificati | on: U.S. Registered/U | J.S. Soil | | | | | | | | | | | |
| - Injury Su | - Injury Summary Matrix Fatal S | | Serious | rious Minor | | | TOTAL | | | | | | |
| First Pi | lot | | | | | 1 | 1 | | | | | | |
| Second | d Pilot | | | | | 1 | 1 | | | | | | |
| Studen | it Pilot | | | | | | | | | | | | |
| Flight In | nstructor | | | | | | | | | | | | |
| Check | Pilot | | | | | | | | | | | | |
| Flight E | Engineer | | | | | | | | | | | | |
| Cabin / | Attendants | | | | | 3 | 3 | | | | | | |
| Other C | Drew | | | | | | | | | | | | |
| Passen | ngers | | | | | 78 | 78 | | | | | | |
| - TOTAL A | ABOARD - | | | | | 83 | 83 | | | | | | |
| Other C | | 0 | 0 | 0 | | | 0 | | | | | | |
| - GRANE | O TOTAL - | 0 | 0 | 0 | | 83 | 83 | | | | | | |
| | | | | | | | · | | | | | | |

National Transportation Safety Board

FACTUAL REPORT AVIATION

NTSB ID: MIA95IA194

Occurrence Date: 08/05/1995

Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

JEFFREY L. KENNEDY

Additional Persons Participating in This Accident/Incident Investigation:

RON ROBSON FAA FSDO CHARLOTTE, NC 28208

GUY COTTRILLE BOEING COMMERCIAL AIRPLANE SEATTLE, WA 98124

JOSEPH MOSES USAIR PITTSBURGH, PA 15231

NORMAN R WHITE USAIR PITTSBURGH, PA 15231