

# **NATIONAL TRANSPORTATION SAFETY BOARD**

**Public Meeting of September 7, 2005**

**(Information subject to editing)**

## **Report of Aviation Accident**

**Crash During Landing, Executive Airlines Flight 5401,**

**Avions de Transport Regional 72-212, N438AT**

**San Juan, Puerto Rico**

**May 9, 2004**

**NTSB/AAR-05/02**

This is a synopsis from the Safety Board's report and does not include the Board's rationale for the conclusions, probable cause, and safety recommendations. Safety Board staff is currently making final revisions to the report from which the attached conclusions and safety recommendations have been extracted. The final report and pertinent safety recommendation letters will be distributed to recommendation recipients as soon as possible. The attached information is subject to further review and editing.

### **EXECUTIVE SUMMARY**

On May 9, 2004, about 1450 Atlantic standard time, Executive Airlines (doing business as American Eagle) flight 5401, an Avions de Transport Regional 72-212, N438AT, skipped once, bounced hard twice, and then crashed at Luis Muñoz Marín International Airport, San Juan, Puerto Rico. The airplane came to a complete stop on a grassy area about 217 feet left of the runway 8 centerline and about 4,317 feet beyond the runway threshold. The captain was seriously injured; the first officer, 2 flight attendants, and 16 of the 22 passengers received minor injuries; and the remaining 6 passengers received no injuries. The airplane was substantially damaged. The airplane was operating under the provisions of 14 *Code of Federal Regulations* Part 121 as a scheduled passenger flight. Visual meteorological conditions prevailed for the flight, which operated on an instrument flight rules flight plan.

The National Transportation Safety Board determines that the probable cause of this accident was the captain's failure to execute proper techniques to recover from the bounced landings and his subsequent failure to execute a go-around.

### **CONCLUSIONS**

1. The captain was properly certificated and qualified under Federal regulations. No evidence indicated any preexisting medical or physical conditions that might have adversely affected his performance during the accident flight. The first officer held a current Federal Aviation Administration airman medical certificate at the time of the accident; however, he failed to provide information about his medical condition (anxiety) or his use of the prescription drug alprazolam when he applied for the certificate.
2. The airplane was properly certificated, equipped, and maintained in accordance with Federal regulations and approved company procedures. The airplane was loaded in accordance with approved company weight and balance procedures. The weight and balance of the airplane were within limits during all phases of the flight.
3. Winds were within the airplane's performance capabilities and did not adversely affect the flight crew's ability to maneuver the airplane during the approach and landing as significant aircraft control authority remained.
4. The emergency response was timely and appropriate. The passengers and crewmembers were safely evacuated from the airplane.

5. At some point during the accident sequence, the captain cockpit seat failed when it was subjected to vertical loads that exceeded those required for certification.
6. The flight crew did not account for winds when calculating the minimum approach airspeed, and, as a result, they were not in compliance with Executive Airlines' approach airspeed procedures.
7. Given the relative positions of the accident airplane and the preceding Boeing 727, the runway configuration, and the existing winds, wake turbulence was not a factor in this accident.
8. The captain did not properly follow Executive Airlines' before landing procedures.
9. The flight crew could have completed a successful landing after the initial touchdown.
10. After each bounce of the airplane on the runway, the captain did not make appropriate pitch and power corrections or execute a go-around, both of which were causal to the accident.
11. The captain demonstrated poor cockpit oversight and piloting techniques before and during the accident sequence.
12. Written company guidance on bounced landing recovery techniques would have increased the possibility that the captain could have recovered from the bounced landings or handled the airplane more appropriately by executing a go-around.
13. The performance of air carrier pilots' would be improved if additional guidance and training in bounced landing recovery techniques were available.
14. The aileron flight control surface position sensors installed on airplanes in accordance with Supplemental Type Certificate No. ST01310NY are unreliable, and flight data recorder functional checks every 6 months could ensure the timely identification and correction of potentiometer malfunctions and ensure that accurate flight control data are available for accident and incident investigations.
15. Because the first officer started getting treatment for anxiety in July 2001, he should have reported this information on his last three Federal Aviation Administration airman medical certificate applications.
16. Although it is possible that the first officer was impaired by his medical condition or prescription drug use, not enough evidence was available to determine whether or to what extent either factor contributed to the accident.
17. The pitch control uncoupling mechanism uncoupled when the airplane touched down for the third time; as a result, the pitch uncoupling would not have prevented the flight crew from controlling or safely landing the airplane.
18. When the airplane touched down for the last time, the vertical forces on the left main landing gear exceeded those that the gear was designed to withstand, and these excessive forces resulted in overload failure.

## **PROBABLE CAUSE**

The National Transportation Safety Board determines that the probable cause of this accident was the captain's failure to execute proper techniques to recover from the bounced landings and his subsequent failure to execute a go-around.

## **SAFETY RECOMMENDATIONS**

As a result of the investigation of the Executive Airlines Flight 5401 accident, the National Transportation Safety Board makes the following recommendations.

### **To the Federal Aviation Administration:**

1. Require all 14 *Code of Federal Regulations* Part 121 and 135 air carriers to incorporate bounced landing recovery techniques in their flight manuals and to teach these techniques during initial and recurrent training.
2. Require the replacement of aileron surface position sensors installed in accordance with Supplemental Type Certificate (STC) No. ST01310NY with more reliable aileron surface position sensors within 1 year or at the next heavy maintenance check, whichever comes first, after the issuance of an approved STC. Until reliable aileron surface position sensors have been installed, require flight data recorder functional checks every 6 months and replacement of faulty sensors, as necessary.
3. Conduct a review of all flight data recorder systems that have been modified by a supplemental type certificate to determine the reliability of all sensors used as flight control surface position sensors. If the review determines that a sensor does not provide reliable flight control surface position data, require that the sensor be replaced with a more reliable sensor.