NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

May 29, 2011

ACCIDENT SITE AND AIRPLANE EXAMINATION

WPR11FA236

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A. ACCIDENT

Location:	Sedona, Arizona
Date:	May 25, 2011
Aircraft:	Embraer-Empresa Brasilerira DE EMB-500, N244MD
NTSB Investigator-in-Charge:	Joshua Cawthra

B. SUMMARY

Examination of the accident and airframe were conducted on scene on May 26, 27, and 28, 2011. No evidence of preimpact mechanical malfunction was noted during the examination of the airframe.

C. DETAILS OF THE INVESTIGATION

1.0 Accident Site Examination

Examination of the accident site revealed that the airplane came to rest upright on an approximate 40-degree incline, oriented on a heading of about 335 degrees magnetic, approximately 386 feet beyond the departure end of runway 21. A section of chain link fence, located about 40 beyond the departure end of runway 21 was damaged and displaced throughout the wreckage debris path. Numerous damaged trees with heights between 2 and 15 feet were located throughout the debris path. A large area of displaced cactus and sage brush was located about 291 feet beyond the departure end of runway 21 and extended to the main wreckage.

Examination of runway 21 revealed that a skid mark, consistent with the left main wheel began about 1,621 feet from the approach end of runway 21. A secondary skid mark, consistent with the right main landing gear began about 1,771 feet from the approach end of the runway. The skid mark, consistent with the left main landing gear was found to be semi intermittent from the first identified point to the end of the runway. The skid mark consistent with the right main landing gear continued from the first identified point to the end of the runway, with the exception of one area just beyond taxiway 8, where evidence of the right main landing gear exiting the runway surface for about 300-feet was observed. The skid marks both appeared initially consistent with the airplane being oriented along the runway centerline, however, progressively tracked towards the right side of the runway and back to the runway centerline three times.

2.0 Airframe Examination

Examination of the wreckage was hoisted via a helicopter and transported to a location on the airport ramp. Upon the relocation, fuel was observed leaking from both the left and right wings. The fuel was removed from the fuel tanks by the wreckage recovery personnel and the airplane was subsequently placed on external stands. The left and right main landing gear appeared to be intact and remained attached to their respective mounts. Both the left and right main landing gear tires rotated freely by hand and appeared to be still inflated. No evidence of flat spots was observed on both of the tire surfaces. However, both tire surfaces exhibited a rough, sandpaper like texture.

The fuselage structure remained mostly intact. The aft area of the fuselage, primary underneath the left and right engines, exhibited impact related damage. The radar dome and nose cone, including the forward baggage area, exhibited impact damage, primary on the bottom and right sides of the airframe. The left and right engines remained attached to the fuselage via both of their respective mounts.

The left wing remained attached to the fuselage structure and exhibited impact damage to the outboard leading edge. The left aileron was separated from all its mounts. The left flap remained partially attached to the wing structure.

The right wing remained attached to the fuselage structure and exhibited impact damage to the outboard leading edge. The right aileron remained attached to the wing structure. The right flap was partially separated from the wing structure.

The empennage, including the left and right horizontal stabilizer, left and right elevator, vertical stabilizer, and rudder were not damaged. The tail cone and tail boom were separated from the empennage.

Examination of the cockpit area revealed the following:

Power Levers: Flight Idle
Flap Handle: 2
Parking Brake: Full In / Off
Engine Ignition: 1 and 2 – On
Engine Start/Stop: 1 and 2 – Off
Ice Protection: Engine 1 On, Engine 2 Off
Wing Stab: Off
Insp Light: Off
Heating: Windshield 1 and 2: Off
Pressurization Mode: Auto
Bleed: Both

Circuit Breakers (Open):

Brake
IND / WARN (LG)
E1 FIRE EX

All six seats, including 2 flight crew seats within the cockpit area, two aft facing passenger seats within the passenger cabin, and two forward facing seats within the passenger cabin were intact. The two flight crew seats were equipped with a six point restraint system. The four passenger seats were equipped with a three point restraint system. When tested, all restraint systems functioned normally.

Submitted by: Joshua Cawthra