



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Orangeburg, SC	<b>Accident Number:</b>	ATL06LA022
<b>Date &amp; Time:</b>	12/09/2005, 2240 EST	<b>Registration:</b>	N790RA
<b>Aircraft:</b>	Embraer EMB-110P1	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Serious

**Flight Conducted Under:** Part 91: General Aviation - Positioning

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## Analysis

The pilot had flown the airplane the day before the accident and after landing on the morning of the accident; she ordered fuel for the airplane. While exiting the airplane another pilot informed her that he had heard a "popping noise" coming from one of the engines. The pilot of the accident airplane elected to taxi to a run up area to conduct an engine run up. The fuel truck arrived at the run up area and the pilot elected not to refuel the airplane at that time and continued the run up. No anomalies were noted during the run up and the airplane was taxied back to the ramp and parked. The pilot arrived back at the airport later on the day of the accident and did not re-order fuel for the airplane nor did she recall checking the fuel tanks during the preflight inspection of the airplane. The pilot departed and was in cruise flight when she noticed the fuel light on the annunciator panel flickering. The pilot checked the fuel gauges and observed less than 100 pounds of fuel per-side indicated. The pilot declared low fuel with Columbia Approach Control controllers and requested to divert to the nearest airport, Orangeburg Municipal. The controller cleared the pilot for a visual approach to the airport and as she turned the airplane for final, the left engine lost power followed by the right engine. The pilot made a forced landing into the trees about 1/4 mile from the approach end of runway 36. The pilot exited the airplane and telephoned 911 emergency operators on her cell phone. The pilot stated she did not experience any mechanical problems with the airplane before the accident. Examination of the airplane by an FAA inspector revealed the fuel tanks were not ruptured and no fuel was present in the fuel tanks.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate preflight inspection and her failure to refuel the airplane which resulted in total loss of engine power due to fuel exhaustion, and subsequent in-flight collision with trees.

## Findings

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Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL  
Phase of Operation: APPROACH

### Findings

1. (C) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND
2. (C) REFUELING - NOT PERFORMED - PILOT IN COMMAND
3. FLUID,FUEL - EXHAUSTION

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Occurrence #2: FORCED LANDING  
Phase of Operation: EMERGENCY DESCENT/LANDING

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Occurrence #3: IN FLIGHT COLLISION WITH OBJECT  
Phase of Operation: EMERGENCY DESCENT/LANDING

### Findings

4. OBJECT - TREE(S)

## Factual Information

### HISTORY OF FLIGHT

On December 9, 2005, at 2240 eastern standard time, an Embraer EMB-110P1, N790RA, registered to and operated by Business Air Incorporated, doing business as Air Now, operating as a 14 CFR Part 91 positioning flight, lost power in both engines, and collided with trees during a forced landing a quarter-mile away from Orangeburg Municipal Airport, Orangeburg, South Carolina. Visual meteorological conditions prevailed and an instrument flight rules flight plan was filed. The airplane received substantial damage. The commercial-rated pilot reported serious injuries. The flight departed Savannah International Airport, Savannah, Georgia, en route to Columbia, South Carolina, on December 9, 2005, at 2100.

The pilot stated she had flown the airplane the day before the accident and after she landed at the Savannah International Airport, on the morning of the accident, she ordered fuel for the airplane. While exiting the airplane another pilot informed her that he had heard a "popping noise" coming from one of the engines. The pilot of the accident airplane elected to start the airplane and taxied to a run up area to conduct an engine run up. The fuel truck arrived at the run up area and the pilot elected not to refuel the airplane at that time and continued the run up. No anomalies were noted during the run up and the airplane was taxied back to the ramp and parked.

The pilot arrived back at the airport later that day. She did not re-order fuel for the airplane nor did she recall checking the fuel tanks during the preflight inspection of the airplane. The pilot stated she departed Savannah and was in cruise flight when she noticed the fuel light on the annunciator panel flickering. The pilot checked the fuel gauges and observed less than 100 pounds of fuel per-side indicated. The pilot declared low fuel with Columbia Approach Control personnel, and requested to divert to the nearest airport, Orangeburg Municipal. The air traffic controller cleared the pilot for a visual approach to the airport. The pilot keyed the microphone to turn the runway lights on and lowered the landing gear. The left engine quit followed by the right engine. The pilot made a forced landing into the trees about 1/4 mile from the approach end of runway 36. The pilot exited the airplane and telephoned 911 emergency operators on her cell phone. The pilot stated she did not experience any mechanical problems with the airplane before the accident.

### PERSONNEL INFORMATION

Review of information on file with the FAA Airman's Certification Division, Oklahoma City, Oklahoma, revealed the pilot was issued a commercial pilot certificate on September 1, 2004, with ratings for airplane single engine land, airplane multi-engine land and instrument airplane. The pilot also holds a flight instructor certificate with ratings for airplane single engine and instrument airplane and a ground instructor certificate with ratings for advanced and instrument ground instruction. Review of FAA Aero medical records show that the pilot holds a second-class medical issued on October 27, 2005, with no restrictions. The pilot reports having 2250 total flight hours with 195 hours in the Embraer Emb-110P1. The pilot's last biennial flight review was conducted on October 8, 2005.

The pilot has been employed by Air Now for approximately one and a half years and was check out as an Embraer EMB-110 pilot-in-command on October 6, 2005.

### AIRCRAFT INFORMATION

The accident airplane was a 1980 model Embraer EMB-110P1, a two place, retractable tricycle gear airplane that was configured for on-demand taxi and freight operations. Review of maintenance records revealed the airplane was installed with two Pratt and Whitney PT6-34 turbo prop engines. The last recorded inspection part of the approved inspection program was conducted on November 2, 2005 at tachometer time 14837.5 and the airplane had flown 52.4 hours since that last inspection.

#### METEOROLOGICAL INFORMATION

The 2253 surface weather observation at Orangeburg Airport, Orangeburg, South Carolina was: wind light and variable, visibility 10 miles, clear sky, temperature 37 degrees Fahrenheit, dew point temperature 36 degrees Fahrenheit, and altimeter 30.26.

#### WRECKAGE AND IMPACT INFORMATION

Examination of the airplane by an FAA inspector revealed the fuel tanks were not ruptured and no fuel was present in the fuel tanks. Further examination revealed the cockpit section was separated from the fuselage, and both wing assemblies were buckled.

#### MEDICAL AND PATHOLOGICAL INFORMATION

The pilot participated in a drug-screening test after the accident and the results were negative.

#### ADDITIONAL INFORMATION

Air Safety Inspector's with the Portland, Maine Flight Standards District Office report that no enroute inspections were performed on Air Now during the year 2005 and the last base inspection for Air Now was performed October 31, 2005 through November 2, 2005; nothing was noted during that inspection.

#### Pilot Information

<b>Certificate:</b>	Flight Instructor; Commercial	<b>Age:</b>	32, Female
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane Single-engine; Instrument Airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without Waivers/Limitations	<b>Last FAA Medical Exam:</b>	10/01/2005
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	10/01/2005
<b>Flight Time:</b>	2250 hours (Total, all aircraft), 195 hours (Total, this make and model), 2200 hours (Pilot In Command, all aircraft), 120 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Make:	Embraer	Registration:	N790RA
Model/Series:	EMB-110P1	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	110.278
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	11/01/2005, AAIP	Certified Max Gross Wt.:	12500 lbs
Time Since Last Inspection:	52 Hours	Engines:	2 Turbo Prop
Airframe Total Time:	14837 Hours at time of accident	Engine Manufacturer:	Pratt & Whitney
ELT:	Installed, not activated	Engine Model/Series:	PT6A
Registered Owner:	BUSINESS AIR INC	Rated Power:	750 hp
Operator:	BUSINESS AIR INC	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:	Air Now	Operator Designator Code:	BZTA

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	OGB, 195 ft msl	Distance from Accident Site:	5 Nautical Miles
Observation Time:	2253 EST	Direction from Accident Site:	360°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/
Wind Direction:	Variable	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.26 inches Hg	Temperature/Dew Point:	3°C / 2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	SAVANNAH, GA (SAV)	Type of Flight Plan Filed:	IFR
Destination:	COLUMBIA, SC (CAE)	Type of Clearance:	IFR
Departure Time:	2100 EST	Type of Airspace:	

## Airport Information

Airport:	ORANGEBURG MUNI (OGB)	Runway Surface Type:	
Airport Elevation:	195 ft	Runway Surface Condition:	
Runway Used:	NA	IFR Approach:	Visual
Runway Length/Width:		VFR Approach/Landing:	Forced Landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Serious	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Serious	<b>Latitude, Longitude:</b>	33.463333, -80.859167

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Eric H Alleyne	<b>Report Date:</b>	05/30/2006
<b>Additional Participating Persons:</b>	Anthony Finocchi; Columbia FSDO-13; Columbia, SC		
<b>Publish Date:</b>			
<b>Investigation Docket:</b>	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).