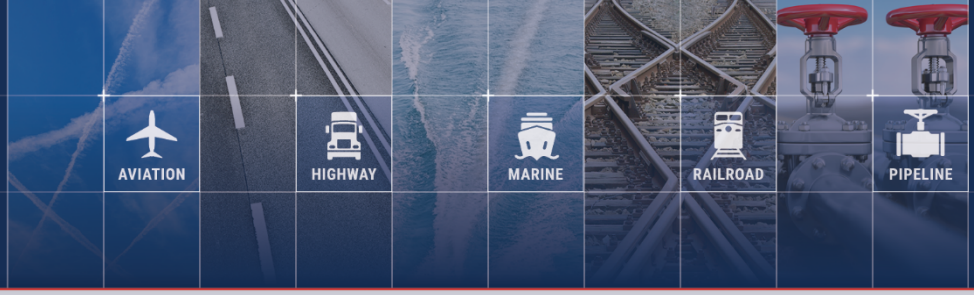

Aviation Investigation Final Report

Location:	N. Myrtle Beach, South Carolina	**Accident Number:**	ATL04LA123
Date & Time:	May 30, 2004, 12:10 Local	**Registration:**	N361Z
Aircraft:	Cessna 310	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal, 3 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot stated approximately four miles from the runway, the right engine began to sputter. He stated that he attempted to restart it, and the right engine briefly produced power and then sputtered again. The pilot stated that he feathered the right propeller and "continued the approach single engine." The pilot stated that "as the approach progressed, [he] realized that [the airplane] could not maintain the glide slope... or clear a tree line ahead." The pilot stated that he committed to ditching the airplane in the waterway to the right, so he retracted the landing gear, and the airplane touched down tail low. The airplane ditched in the intracoastal waterway two miles short of runway 23 and sank in 12-20 feet of water. The post-accident examination of the airplane revealed the airframe was intact. Fuel system continuity was established from the tip tanks to the fuel strainer, and the fuel strainer and the fuel pump were intact and free of debris. When water was displaced from the engine, fuel system, and magnetos, both engines started and produced power at idle and high RPM settings. No anomalies were observed during the engine run. The pilot of a flight in the airplane on the previous day stated that upon returning to DeKalb-Peachtree Airport, there were about 58-60 gallons of fuel on board the airplane. He further stated that the airplane was not refueled that evening or prior to the accident flight on May 30, 2004. According to the 1955 Cessna 310 owner's manual, the main fuel wingtip fuel tanks have a capacity of 102 gallons, of which 100 gallons are usable fuel and two gallons are unusable.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate preflight/planning and his in-flight decision which resulted in the loss of power in one engine due to fuel starvation.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: APPROACH - FAF/OUTER MARKER TO THRESHOLD (IFR)

Findings
1. 1 ENGINE
2. (C) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
3. (C) IN-FLIGHT PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND
4. FLUID,FUEL - STARVATION

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

Occurrence #3: DITCHING
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
5. TERRAIN CONDITION - WATER

Factual Information

HISTORY OF FLIGHT

On May 30, 2004 at 1210 eastern daylight time, a Cessna 310, N361Z, registered to and operated by Atlanta Flight Time, LLC, ditched in the Intracoastal Waterway two miles short of runway 23 at Grand Strand Airport/North Myrtle Beach, South Carolina. The personal flight was conducted under Title 14 CFR Part 91, and instrument flight rules (IFR). Visual meteorological conditions prevailed at the time of the accident and an IFR flight plan was on file. The commercial pilot and two passengers sustained minor injuries and one pilot-rated passenger egressed the airplane, but was subsequently recovered from the waterway 48 hours later. The airplane sustained substantial damage. The flight originated at DeKalb-Peachtree Airport, Chamblee, Georgia, on May 30, 2004, at 1020.

On May 30, 2004, at 0940, the pilot of N361Z telephoned the Macon Automated Flight Service Station and requested to file an instrument flight plan from DeKalb-Peachtree Airport in Chamblee, Georgia, to Grand Strand Airport in North Myrtle Beach, South Carolina. The pilot was given a standard preflight weather briefing, and after which he filed an instrument flight plan.

The pilot stated that during the preflight planning and inspection of the airplane, he estimated 80 gallons of fuel to be on board by visual inspection of the fuel tanks as well as referencing to the fuel gauges in the cockpit. He stated that he calculated fuel burn to be approximately 12 gallons per hour, per engine, or 24 gallons per hour total including a margin of error. The pilot stated that the airplane's weight and balance for the flight was calculated and found to be within operating limitations. He further stated that no mechanical abnormalities were noted during the preflight inspection of the airplane or during the before takeoff run-up.

At 1010, the pilot radioed DeKalb-Peachtree Airport ground control and requested an instrument flight clearance to Grand Strand Airport, and taxi instructions for takeoff from the north ramp. The ground controller issued the pilot the instrument clearance as requested and cleared the flight to taxi to runway 20L for the instrument departure. The pilot acknowledged the instrument clearance and taxi instructions. At 1024: 24, the pilot established radio contact with Atlanta Departure Control after takeoff from runway 21.

The pilot stated that the take-off, climb to 9000 feet, and the enroute portions of the flight were uneventful. At 1202:04, Myrtle Beach East Radar reported that the flight was 7 miles from the initial approach fix for the ILS Runway 23 approach. The pilot stated that upon entering the North Myrtle Beach terminal area, he was given an approach clearance for the ILS Runway 23 approach and the pilot was instructed to maintain 2000 feet. At 1202:56, the pilot acknowledged the approach clearance and was also instructed to contact Grand Strand

Tower. No further radio communication was recorded between the flight and the air traffic control system.

According to the pilot when the flight was approximately four miles from the runway, the right engine began to sputter. The pilot stated that he attempted to restart the right engine, and it briefly produced power and then sputtered again. The pilot stated that he feathered the right propeller and "continued the approach single engine." The pilot also stated that "as the approach progressed, [he] realized that [the airplane] could not maintain the glide slope... or clear a tree line ahead." The pilot stated that he was then committed to ditching the airplane in the nearby waterway. So, the pilot retracted the landing gear, and the airplane touched down tail low in the water. The pilot and the three passengers were able to egress from the airplane through the right door into the water. A nearby boat came to the aid of one passenger and attempted to help the deceased passenger. The pilot and other passengers were able to swim to shore. The airplane sank in 12-20 feet of water.

At 1211:05, Grand Strand Tower informed North Myrtle Beach East Radar that a Cessna had gone down in the intracoastal waterway, and an emergency crew was enroute to the accident site.

PERSONNEL INFORMATION

The pilot was issued a commercial certificate on July 5, 2002, with ratings for airplane multi-engine land and instrument airplane. He held a valid second-class medical certificate issued March 31, 2004, with the restrictions "must wear corrective lenses." A review of the pilot logbooks revealed the pilot's total flight time of 405 hours, of which 143 hours were in a multi-engine aircraft and 68 hours were in the Cessna 310.

AIRCRAFT INFORMATION

A review of the aircraft and engine logbooks revealed that the annual inspection was completed on August 6, 2003.

A review of records on file with Air Tuskegee, Tuskegee, Alabama, revealed the airplane was refueled on May 29, 2004 with 40 gallons of 100-low lead aviation fuel. The pilot-in-command of that flight stated that upon returning to DeKalb-Peachtree Airport, there were about 58-60 gallons of fuel on board the airplane. He further stated that the airplane was not refueled that evening or prior to the accident flight on May 30, 2004.

According to the 1955 Cessna 310 owner's manual, the main wingtip fuel tanks have a capacity of 102 gallons, of which 100 gallons are usable fuel and two gallons are unusable. It states the cruise fuel consumption, with lean mixture at gross weight ranges from 22 total gallons to 25 total gallons of fuel per hour. Climb fuel consumption to 9,000 feet, with full power at gross weight is between 6 gallons and 7 gallons of fuel.

The owner's manual designates 93 miles per hour (mph) as the single engine minimum control speed. It further states that during a single-engine landing, when the airspeed is below 93 mph, the airplane is committed to land.

METEOROLOGICAL INFORMATION

At 1210, the North Myrtle Beach/Grand Strand Airport weather reporting facility reported the winds variable at 10 knots, eight statute miles of visibility, broken cloud layers at 1,500 feet and 2,000 feet, temperature of 26 degrees Celsius and dew point of 24 degrees Celsius.

WRECKAGE AND IMPACT INFORMATION

The airplane was ditched in the intracoastal waterway two miles short of runway 23. The post-accident examination of the airplane revealed the airframe was intact. Both propellers were bent aft on both blades. The underside of the fuselage and nose had some buckling and tearing of the skin. Flight control continuity was established from the cockpit flight controls to all flight control surfaces. The cockpit throttle controls were set to idle. The left propeller control was set to high rpm; the right propeller control was set to low rpm. The left mixture control was set at full rich; the mixture control was set at idle cut-off. Engine control continuity was established from the cockpit power to controls to all engine power controls. The fuel selectors were set to the corresponding fuel tanks.

Examination of both engines revealed suction and compression in all cylinders, full valve action, and internal components were intact and rotated freely. Magneto ignition sparks on both magnetos in each engine were observed. Fuel system continuity was established from the tip tanks to the fuel strainer, and the fuel strainer and the fuel pump were intact and free of debris. When water was displaced from the engine assemblies, fuel systems, and magnetos, both engines started and produced power at idle and high RPM settings. No anomalies were observed during the functional engine checks.

Further examination of the propeller and assemblies revealed both propellers were able to cycle "normally" through entire pitch ranges. There was a large amount of oil present in both propeller cylinders, indicitive of neither propeller being in feather during the accident. Blade damage suggested that both propellers were operating with low or no power and that the left propeller had more rotational energy than the right propeller. No mechanical malfunction was observed of either of the propeller assemblies.

MEDICAL INFORMATION

The Horry County Coroner's Office, Conway, South Carolina, conducted a postmortem examination of the passenger on June 1, 2004. The reported cause of death was as "asphyxia due to drowning."

ADDITIONAL INFORMATION

The Cessna 310 owner's manual checklist for 'Engine Failure During Flight' is comprised of 15 steps. Steps 9, 10, and 11 are as follows:
(9) If cause of [engine] failure was not determined, put mixture in "IDLE CUT-OFF."
(10) Feather inoperative propeller.
(11) Secure dead engine by turning boost pump, fuel selector valve, and ignition switches "OFF."

Pilot Information

Certificate:	Commercial	**Age:**	34,Male
Airplane Rating(s):	Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	March 31, 2004
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	July 5, 2002
Flight Time:	403 hours (Total, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N361Z
Model/Series:	310	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	35157
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	August 6, 2003 Annual	**Certified Max Gross Wt.:**	4600 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	5663 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	O-470 M
Registered Owner:	Atlanta Flight Time, LLC	**Rated Power:**	240 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KCRE,32 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	12:10 Local	**Direction from Accident Site:**	50°
Lowest Cloud Condition:		**Visibility**	8 miles
Lowest Ceiling:	Broken / 1500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.98 inches Hg	**Temperature/Dew Point:**	26°C / 24°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Chamblee, GA (KPDK)	**Type of Flight Plan Filed:**	IFR
Destination:	N. Myrtle Beach, SC (KCRE)	**Type of Clearance:**	IFR
Departure Time:	10:20 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	N. Myrtle Beach/Grand Strand KCRE	**Runway Surface Type:**	Asphalt
Airport Elevation:	32 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:	23	**IFR Approach:**	ILS
Runway Length/Width:	5996 ft / 100 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal, 2 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 3 Minor	**Latitude, Longitude:**	33.811668,-78.723892

Administrative Information

Investigator In Charge (IIC):	Powell, Phillip
Additional Participating Persons:	Marlene Van Buren; Columbia FSDO
Original Publish Date:	July 7, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=59438