Aviation Investigation Final Report

Location:	Morrisville, North Carolina	**Accident Number:**	ATL04FA118
Date & Time:	May 16, 2004, 21:16 Local	**Registration:**	N4550S
Aircraft:	Beech A36	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The flight departed Daytona Beach International Airport enroute to Wilmington International Airport, where the passengers were to deplane. The pilot performed a visual inspection of the airplane, checked the fuel tanks and verifyed that they were full before taking off from Daytona Beach. Two passengers stated that the flight from Daytona Beach to Wilmington was approximately two and a half hours long. Upon arriving in Wilmington, the pilot did not shut down the engine, but deplaned the passengers and continued the flight to Raleigh-Durham International Airport. The pilot established radio contact with the FAA Raleigh Approach Control and was provided flight following service for the flight. When the flight arrived within range of the airport, the pilot was given radar vectors to the final approach course for runway 23L. A review of radar data showed that when the airplane was 1.37 miles from the runway, the airplane was about 800 feet mean sea level. At the same time the pilot reported to the controller that he had a problem. Seconds later, the pilot reported that he had lost his engine. This was the last radio transmission from the pilot. Examination of the accident site revealed that two broken power lines located along the wreckage path. The main wreckage was located inverted in a creek 4,800 feet on an extended centerline on the approach side for runway 23L. Postcrash examination and testing of the aircraft structure, flight controls, systems, engine, and propeller showed no evidence of precrash anomalies. The fuel lines were found severed at the wing roots.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the engine for undetermined reasons resulting in the aircraft colliding with powerlines and the ground during the subsequent forced landing.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings
1. (C) REASON FOR OCCURRENCE UNDETERMINED

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

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

Findings
2. OBJECT - WIRE,STATIC

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
3. TERRAIN CONDITION - GROUND

Factual Information

This report was modified on July 17, 2007.

HISTORY OF FLIGHT

On May 16, 2004, at 2116 eastern daylight time a Beech A36, N4550S, registered to FCA Inc., and operated by a private pilot, collided with powerlines and the ground during a forced landing following a reported loss of engine power in Morrisville, North Carolina. The personal flight operated under the provisions of Title 14 CFR Part 91 with no flight plan filed. Visual weather conditions prevailed at the time of the accident. The private pilot, the sole occupant, received fatal injuries and the airplane sustained substantial damage. The flight departed Wilmington International Airport, Wilmington, North Carolina, on May 16, 2004, at 2030.

According to the passengers, the flight departed Daytona Beach International Airport the evening of May 16, 2004 enroute to Wilmington International Airport, where the passengers were to deplane. A passenger recalled the pilot performing a visual inspection of the airplane, checking the fuel tanks and verifying they were full before taking off from Daytona Beach. Two passengers stated that the flight from Daytona Beach to Wilmington was approximately two and a half hours long. Upon arriving in Wilmington, the pilot did not shut down the engine, but deplaned the passengers and continued the flight to Raleigh-Durham International Airport.

According to Raleigh control tower, the pilot established radio contact and was provided flight following service for the flight. When the flight arrived within range of the Raleigh-Durham International Airport, the pilot was given radar assistance to the final approach course for runway 23L. A review of radar data showed that when the flight was about 1.37 miles from the runway, the airplane was about 800 feet. At the same time the pilot reported to the tower controller that he had a problem. Seconds later, the pilot reported that his engine had failed. This was the last radio transmission from the pilot. The airport's crash fire rescue was dispatched to the general area of the downed airplane.

PERSONNEL INFORMATION

Review of information on file with the FAA Airman's Certification Division, Oklahoma City, Oklahoma, revealed that the airman held a private pilot certificate with the airplane single engine land rating. The date of issue for the certificate was December 19, 1994. Review of records on file with the FAA revealed the pilot held a third-class medical certificate issued on September 3, 2002 with the limitation that the pilot must have available glasses for near vision. The pilot indicated on his application for the medical certificate that he had accumulated 815 total flight hours. The pilot's logbook was not located for examination.

AIRCRAFT INFORMATION

The aircraft was a single engine, 1975 Beech A36. Review of maintenance records revealed the last annual inspection was conducted on July 11, 2003 and the airframe total time was 1,161hours. Refueling records on file at Air Wilmington Inc., Wilmington, North Carolina revealed that the airplane was fueled on May 12, 2004 with 14.3 gallons of fuel. Records on file with Executive Flightline, Daytona Beach, Florida revealed that the airplane received an oil change and 44.8 gallons of fuel on May 13, 2004. The tachometer time recorded during the oil change was 1,399.7 hours. At the time of the accident the tachometer time was 1403.30.

METEOROLOGICAL INFORMATION

The weather reporting station was at the Raleigh-Durham International Airport in Raleigh-Durham, North Carolina. The 2115 surface weather observation was: winds variable and calm, visibility 7 miles, cloud condition clear, temperature 19-degrees Celsius, dew point 19-degrees Celsius and altimeter 30.27 Hg. Visual meteorological conditions prevailed at the time of the accident.

WRECKAGE AND IMPACT INFORMATION

Examination of the accident site revealed that wreckage debris was scattered over an area 45 feet wide and 125 feet long. At the time of the accident the airport property reported utility outage. There were two broken power lines located along the wreckage path at the accident site. The main wreckage was located inverted in a creek 4,800 feet on an extended centerline on the approach side for runway 23L. Further examination revealed that the left outboard wing panel was torn from the wing assembly, and the right outboard wing panel attached but deflected aft. Traces (unmeasurable quantities) of fuel was seen flowing from the severed fuel lines at the wing roots when the airplane was lifted from the accident site. The fuel selector was found on the right tank position.

The engine assembly was attached to the airframe as the airplane rested inverted in the creek. The propeller and engine assemblies were partially submerged in the water. The cockpit and forward portion of the passenger cabin were also submerged in the creek water. The left side of the cockpit was crushed in an upward direction and the structural support material was deformed about 45 degrees up. The outboard wing panels were torn from the airframe and were within the immediate vicinity of the main wreckage. Further examination of the main wreckage revealed that both main and nose gear were in the extended positions. The main wreckage was supported on the north shore of the creek by a four -inch tree. The empennage and tail cone of the airframe rested inverted on the north shore of the creek bed.

Examination of the wreckage showed that all components of the airplane which are necessary for flight were located along the debris path. Examination of the flight control system showed no evidence of precrash failure or malfunction. All separation points within the cables was consistent with overstress separation.

The engine was mounted on an engine test stand at an aircraft salvage yard and a substitute electric fuel pump was installed between the fuel supply and the engine. The engine was started and allowed to idle. When the substitute electric fuel pump was turned off the engine shutdown. The engine was restarted and operated to 2,000 RPM with the electric fuel pump on. The right magneto would not ground during magneto tests. The engine was shutdown and the engine driven fuel pump and right magneto were removed from the engine. The engine driven fuel pump was found to contain foreign contamination at the inlet. The debris was removed and the pump was reinstalled on the engine. The right magneto was found to have water contamination in the cap. This was removed and the magneto was reinstalled on the engine. The electric fuel pump from the airframe of N4550S was installed between the fuel supply and the engine. The engine was started and allowed to idle. The engine continued to idle when the electric fuel pump was turned off. The engine was operated to 2,100 RPM with no evidence of failure or malfunction. The right magneto would not ground when switched off. The engine driven fuel pump and right magneto were removed from the engine for further testing.

Testing of the right magneto under NTSB supervision at the manufacturer's facility showed the magneto operated normally. Testing of the engine driven fuel pump under NTSB supervision at the manufacturer's facility showed during initial startup a flow of fuel was observed to exit the outlet and vapor return fittings. After several seconds of operation. the flow from the vapor return fitting ceased. The pump operated normally. The pump, without any adjustments, was then installed on a similar model engine as N4550S in a test stand at the manufacture's facility. The test engine was started and the pump operated normally through the full range of engine power without assistance from an electric fuel pump.

MEDICAL AND PATHOLOGICAL INFORMATION

The Office of the Chief Medical Examiner, Chapel Hill, North Carolina conducted the postmortem examination of the pilot on May 18, 2004. The cause of death was multiple blunt force trauma. The FAA Mike Monroney Aeronautical Center in Oklahoma City, Oklahoma performed postmortem toxicology of specimens from the pilot. The FAA's Forensic Toxicology Fatal Accident Report revealed no carbon monoxide or cyanide detected in blood, and no ethanol detected in urine. There was 0.2 (ug/ml, ug/g) amphetamine detected in blood, 5.992 (ug/ml, ug/g) amphetamine detected in urine, no phenylpropanolamine detected in blood, phenylpropanolamine detected in urine, and quinine detected in both blood and urine.

ADDITIONAL INFORMATION

The components retained by NTSB for further testing were released to Harry Brooks, a representative of the aircraft's insurance company, on September 27, 2006.

Pilot Information

Certificate:	Private	**Age:**	53,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	March 1, 2002
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	815 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N4550S
Model/Series:	A36	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal; Utility	**Serial Number:**	E735
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	July 1, 2003 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	240 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1161 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-520
Registered Owner:	FCA Inc.	**Rated Power:**	300 Horsepower
Operator:	Robert G. Snyder	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	RDU,437 ft msl	**Distance from Accident Site:**	
Observation Time:	01:15 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	7 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.27 inches Hg	**Temperature/Dew Point:**	19°C / 19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Wilmington, NC (ILM)	**Type of Flight Plan Filed:**	None
Destination:	Raleigh-Durham, NC (RDU)	**Type of Clearance:**	VFR
Departure Time:	19:45 Local	**Type of Airspace:**	

Airport Information

Airport:	Raleigh-Durham International RDU	**Runway Surface Type:**	Concrete
Airport Elevation:	437 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	23L	**IFR Approach:**	None
Runway Length/Width:	7500 ft / 150 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	35.829772,-78.830116(est)

Administrative Information

Investigator In Charge (IIC):	Powell, Phillip
Additional Participating Persons:	Lynda Falcon; Greensboro FSDO; Greensboro, NC
Original Publish Date:	July 25, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=59233