Aviation Investigation Final Report

Location:	CORDESVILLE, South Carolina	**Accident Number:**	ATL00FA021
Date & Time:	January 3, 2000, 21:30 Local	**Registration:**	N5703P
Aircraft:	Piper PA-24-180	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Approximately five hours and fifteen minutes into the flight, the pilot radioed Approach Control and requested landing. Minutes after the initial radio contact, the pilot reported that the airplane had run out of fuel. The pilot was issued radar vectors to the nearest airport. Seconds later, radio and radar contact was lost. Within about two minutes an Emergency Locator Transmitter (ELT) signal was reported by another airplane flying in the vicinity of the downed airplane. The accident airplane was located by the ground search operation the morning following the accident. Examination of the airframe also failed to disclose a mechanical malfunction or the failure of related component assemblies. Approximately 1/2 gallon of fuel was recovered from the right fuel tank. The left fuel tank was ruptured. The engine operated up to 1700 rpm during the functional engine check.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate inflight planning that resulted in fuel exhaustion and the subsequent loss of engine power.

Findings

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

Findings

1. (C) FLUID,FUEL - EXHAUSTION
2. (C) IN-FLIGHT PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND

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

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

Findings
3. OBJECT - TREE(S)

Factual Information

HISTORY OF FLIGHT

On January 3, 2000, at 2130 eastern standard time, a Piper PA-24-180, N5703P, collided with trees in a heavily wooded area while maneuvering for an emergency landing in Cordsville, South Carolina. The personal flight was operated by the pilot 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 airplane was substantially damaged. The air transport pilot and left rear seat passenger received fatal injuries; the right front seat passenger received serious injuries. The flight departed the Princeton/Rocky Hill Airport in Princeton, New Jersey, at 1615.

At 1101, the pilot of N5703P telephoned the Williamsport, Pennsylvania, Flight Service Station and requested an abbreviated weather briefing from Princeton, New Jersey to Key West, Florida. According to the Air Traffic Control Specialist, the pilot was briefed in the existing and forecast weather conditions for the requested route of flight. No significant enroute weather conditions were reported during the briefing.

According to the Fixed Base Operator (FBO) at Princeton/Rocky Hill Airport, the fuel tanks were topped-off with aviation fuel before the flight departed. The FBO also reported that the pilot had stated that his destination was Key West, Florida, and the pilot planned an enroute stop in Savannah, Georgia. Approximately five hours and fifteen minutes into the flight, the pilot radioed Charleston Approach Control and requested landing. About two minutes after the initial radio contact, the pilot reported that the airplane had run out of fuel. The approach controller immediately issued the pilot radar vectors to the nearest airport. Seconds later, radio and radar contact was lost. Within about two minutes an Emergency Locator Transmitter (ELT) signal was reported by another airplane.

At approximately 0230, on January 4, 2000, the accident airplane was located by the ground search operation.

PERSONNEL INFORMATION

The pilot held an Air Transport Pilot certificate with an airplane multi-engine land, and instrument ratings. The pilot also held a commercial pilot's certificate with an airplane single engine land and glider aero tow certificate. His total flight time was 16,000 hours and approximately 850 flying hours in the Piper PA-24-180. The pilot held a current first class medical certificate, dated July 20, 2000. There were no medical limitations associated with the pilot's flight privileges.

AIRCRAFT INFORMATION

The Piper PA-24-180, N5703P, was owned and operated by the pilot. N-5703P was a low-wing airplane powered by an Avco Lycoming O-360-A engine. The airplane was equipped with two 30 gallon fuel tanks. A review of the airplane maintenance logbooks showed that the airplane was maintained in accordance with applicable Federal Aviation Regulations.

METEOROLOGICAL INFORMATION

The Charleston 2156 weather observation reported sky clear, visibility 10 miles, wind 020 degrees at four knots. The accident site was about 28 miles north Charleston, South Carolina. .

AIRPORT INFORMATION

Berkeley County Airport is an uncontrolled local airport located one mile southwest of the city of Moncks Corner, South Carolina. The asphalt runway surface is 3,801 feet long and 75 feet wide. The elevation at the airport is 74 feet above sea level.

WRECKAGE AND IMPACT INFORMATION

Examination of the accident site disclosed that wreckage rested in a heavily wooded area approximately seven miles east of Moncks Corner Airport. Wreckage debris was scattered over an area 130 feet long and 45 feet wide, and was orientated on a 300 degree magnetic heading. The main wreckage was also oriented on a northwesterly magnetic heading. The main wreckage rested upright in a 30-degree nose low attitude against a tree. The main wreckage was located at 33 degrees 09.919 north latitude and 079 degrees 53.943 west longitude.

The examination of the main wreckage at the accident site disclosed that the left horizontal stabilator assembly was separated from the airframe and was located south of the main wreckage. Further examination of the left horizontal stabilator showed leading edge compression damage. Freshly broken tree debris was scattered in the immediate vicinity of the left horizontal stabilator. The right horizontal stabilator and the vertical fin assemblies remained attached to the airframe.

The stabilator and rudder flight control cables remained attached to their respective actuator rod and bellcrank assemblies. Rudder and stabilator flight control cable movement was established between the flight control surface and the base of the flight control column. Deformation to the lower instrument panel and the cabin flooring restricted flight control cable movement in the vicinity of the flight control column.

Further examination of the airframe revealed that the left wing assembly was displaced aft from the normally installed position, and that the left fuel bladder was ruptured. No notable amount of fuel was recovered from the 30 gallon fuel tank. The left wing also sustained semi-circular compression leading edge damage at the wing root attach point. The wing root

damage extended aft through mid-chord of the left wing structure. Examination of the aileron flight control cable revealed that the cable had fractured at the mid-span position of the left wing. The left main landing gear was found in the extended position.

The right wing remained attached to the airframe, and the right flap and aileron assemblies remained attached at their respective positions. The right wing also exhibited compression damage along the leading edge. The right fuel tank was intact and approximately 1/2 gallon of fuel was recovered from the tank. The right main landing gear was found in the extended position.

The cockpit flooring was displaced in an aft and up direction. The remainder of the cockpit structure was ruptured and the occupants were exposed to ambient conditions. The instrument panel was also displaced aft into the pilot and co-pilot stations; the front seat occupants were fatally injured.

The examination and functional run of the engine failed to disclose a system malfunction or a component failure. Prior to the engine run, the propeller governor and the carburetor fuel line inlet fitting were replaced. The engine functional check was successfully up to 1,700 rpm. Propeller vibration prevented the engine run above 1,700 rpm.

Examination of the remainder of the airframe also failed to disclose a mechanical malfunction or the failure of related component assemblies.

MEDICAL AND PATHOLOGICAL INFORMATION

On January 4, 2000, the postmortem examination on the pilot was performed by Dr. Melissa Sims at the Charleston Medical University of South Carolina in Charleston, South Carolina. The forensic toxicology was performed by the FAA Toxicology and Accident Research Laboratory, Oklahoma City, Oklahoma. The tests were negative for carbon monoxide, cyanide, drugs and alcohol.

ADDITIONAL INFORMATION

A review of the Piper PA-28-180 performance charts disclosed the following fuel consumption rates: at 75% power- 10 gph (gallons per hour) at 65% power- 8.8 gph at 55% power- 7.5 gph.

Reportedly, the fuel tanks were topped-off with 60 gallons of aviation fuel when the flight departed. Approximately, 5.2 hours into the flight the pilot reported the lost of engine power and that the airplane was out of fuel. Cruise flight fuel conservation procedures used by the pilot were not determined.

The airplane wreckage was released to Mr. Mark Thompson, an insurance adjuster, Atlanta, Georgia.

Pilot Information

Certificate:	Airline transport; Commercial; Flight engineer	**Age:**	57,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Glider	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	July 20, 1999
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	16000 hours (Total, all aircraft), 850 hours (Total, this make and model), 40 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N5703P
Model/Series:	PA-24-180 PA-24-180	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-776
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	December 14, 1999 Annual	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:	5 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2451 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	O-360-A1A
Registered Owner:	WILLIAM T. HAUPT	**Rated Power:**	180 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	CHS ,46 ft msl	**Distance from Accident Site:**	28 Nautical Miles
Observation Time:	21:56 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:	Clear	**Visibility**	5 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	15°C / 15°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	PRINCETON , NJ (39N)	**Type of Flight Plan Filed:**	None
Destination:	SAVANNAH , GA (SAV)	**Type of Clearance:**	None
Departure Time:	16:15 Local	**Type of Airspace:**	

Airport Information

Airport:	MONCKS CORNER AIRPORT 5OJ	**Runway Surface Type:**	Concrete
Airport Elevation:	46 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	21	**IFR Approach:**	None
Runway Length/Width:	6000 ft / 150 ft	**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal, 1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal, 1 Serious	**Latitude, Longitude:**	33.190975,-79.989547(est)

Administrative Information

Investigator In Charge (IIC):	Powell, Phillip
Additional Participating Persons:	LEWIS BLACKWELL; COLUMBIA , SC
Original Publish Date:	April 19, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=48431