Aviation Investigation Final Report

Location:	BENNETTSVILLE, South Carolina	**Accident Number:**	ATL97LA002
Date & Time:	October 12, 1996, 19:00 Local	**Registration:**	N846MC
Aircraft:	Bell UH-IB	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Serious
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The helicopter was being used on an aerial application flight when it collided with the ground. There were no reported eyewitnesses to the accident. Head injuries of the pilot prevented him from giving a full account of the accident. Examination of the accident site disclosed that the tail section of the airframe collided with the ground, followed by the nose section colliding with a stump. Examination of the airframe and subsystems failed to disclose a mechanical problem. A review of the aircraft maintenance logs disclosed several open discrepancies. One discrepancy stated that the left fuel boost pump was not operational. According to the aircraft operator's manual, about 55 pounds of fuel would have been unusable in the left tank, if the boost pump was not operational. Wreckage examination revealed about 1/4 inch of fuel in the right fuel tank and about four inches (less than 55 pounds) of fuel in the left fuel tank. Neither the odor of fuel nor visible fuel leakage was noted at the accident site. Cockpit examination revealed that the left fuel pump boost circuit breaker was out. No fuel tank selector was installed in the UH-1B helicopter.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's improper planning/decision, which resulted in fuel exhaustion and loss of engine power due to an inadequate supply of usable fuel. A factor relating to the accident was: an inoperative left boost pump, which increased the amount of unusable fuel in the respective tank.

Findings

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

Findings
1. (C) PLANNING/DECISION - IMPROPER - PILOT IN COMMAND
2. (F) FUEL SYSTEM,ELECTRIC BOOST PUMP - INOPERATIVE
3. OPERATION WITH KNOWN DEFICIENCIES IN EQUIPMENT - PERFORMED
4. (C) FLUID,FUEL - EXHAUSTION
5. (C) FUEL SUPPLY - INADEQUATE - PILOT IN COMMAND

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

Findings
6. AUTOROTATION - PERFORMED

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Factual Information

On October 12, 1996, at 1900 eastern daylight time, a Bell UH-1B, N846MC, collided with the ground and a stump under unknown circumstances near Bennettsville, South Carolina. The aerial application flight operated under the provisions of Title 14 CFR Part 137, with no flight plan filed. Visual weather conditions prevailed at the time of the accident. The helicopter was destroyed, and the pilot received serious injuries. The flight departed the staging area in Bennettsville, South Carolina, at 1847.

According to the operator, the pilot sustained head injuries and, is still unable to give an account of the accident. The operator's records showed that the flight departed the staging area about 1847. The purpose of this flight was to complete the spraying operation that had been started earlier. The operator also stated that the ground personnel, who assisted the pilot in the loading and refueling operation, did not witness the events of the accident; there were no reported eyewitnesses to the accident. Examination of the accident site disclosed that the tail section of the airframe collided with the ground, followed by the nose section collision with a stump. The helicopter rested on the right side with the nose section orientated in the opposite direction of the initial flight path.

During the examination of the wreckage, a small quantity of fuel was recovered from the fuel system. The subsequent examination of the airframe and subsystems failed to disclose a mechanical problem. However, a review of the aircraft maintenance logs revealed several open discrepancies. One discrepancy stated that the left fuel boost pump was not operational. According to the aircraft operator's manual approximately 55 pounds of fuel would be unusable in the left tank when the boost pump is not operational. The wreckage examination also revealed that the right fuel tank had approximately 1/4 inch of fuel at the lowest point. There were about four inches or less than 55 pounds of fuel in the left fuel tank at the lowest point. The odor of fuel or visible fuel leakage was not observed at the accident site. The cockpit examination revealed that the left fuel pump boost circuit breaker was out. There is no fuel tank selector installed on the UH-1B helicopter.

Pilot Information

Certificate:	Commercial	**Age:**	43,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	No
Medical Certification:	None Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	March 11, 1996
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	4000 hours (Total, all aircraft), 825 hours (Total, this make and model), 3950 hours (Pilot In Command, all aircraft), 125 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N846MC
Model/Series:	UH-IB UH-IB	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	60-3567
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	June 6, 1996 100 hour	**Certified Max Gross Wt.:**	8500 lbs
Time Since Last Inspection:	80 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:	5654 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	T-53L11D
Registered Owner:	AG ROTOR INC,.	**Rated Power:**	1250 Horsepower
Operator:		**Operating Certificate(s) Held:**	
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	FLO ,65 ft msl	**Distance from Accident Site:**	20 Nautical Miles
Observation Time:	16:50 Local	**Direction from Accident Site:**	175°
Lowest Cloud Condition:	Clear	**Visibility**	15 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	60°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	16°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(NONE)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	18:47 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	34.629436,-79.680404(est)

Administrative Information

Investigator In Charge (IIC):	Powell, Phillip
Additional Participating Persons:	WILLIAM G ROBERTS; COLUMBIA , SC
Original Publish Date:	September 30, 1997
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=3791