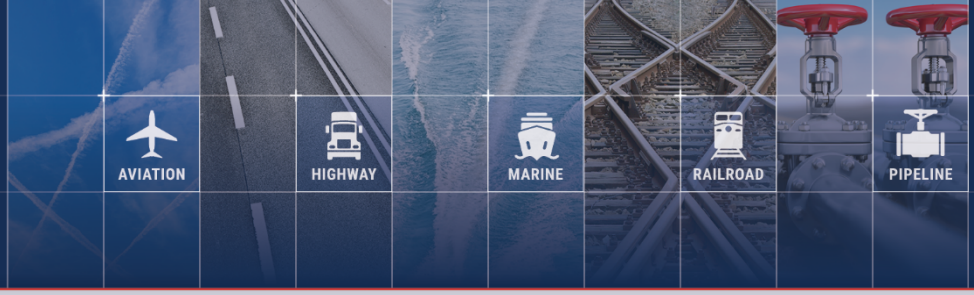

Aviation Investigation Final Report

Location:	FORT WALTON BCH, Florida	**Accident Number:**	MIA00LA176
Date & Time:	May 27, 2000, 17:44 Local	**Registration:**	N96MB
Aircraft:	Bell 47G-2	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	3 None
Flight Conducted Under:	Part 91: General aviation		

Analysis

The pilot stated that after takeoff climbing through approximately 300 feet, the engine experienced a loss of power. He maneuvered the helicopter towards the beach and landed about 20 yards offshore. No fuel contamination was noted in the fuel tanks that contained sufficient fuel. A slight amount of sand/silt was noted in the fuel strainer; the carburetor bowl contained about a pint of water admixed with sand or silt. The left fuel tank vent line and vent line 'B' nut were damaged. Examination of the engine revealed valve train continuity of all cylinders. During an attempt to start the engine; the magnetos would not producing spark. Examination of the carburetor revealed internal corrosion; no preimpact failure or malfunction was noted. Examination of both magnetos revealed internal corrosion. The points of both magnetos were lightly dressed and high tension tested; both magnetos produced spark. One ignition lead of the left magneto was not firing due to corrosion on one of the electrodes; the corrosion was cleaned and the magneto fired all of the ignition leads. Additionally, the condenser of the right magneto tested bad.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The unsuitable terrain encountered by the pilot-in-command during the forced landing and the loss of engine power for undetermined reasons.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - NONMECHANICAL
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
2. (C) UNSUITABLE TERRAIN OR TAKEOFF/LANDING/TAXI AREA - ENCOUNTERED - PILOT IN COMMAND

Factual Information

On May 27, 2000, about 1744 central daylight time, a Bell 47G2, N96MB, registered to and operated by Penguin Air Helicopters, Inc., experienced an in-flight collision with terrain and water during an autorotative landing following a loss of engine power shortly after takeoff from the Broadway Helicopters Heliport, Fort Walton Beach, Florida. Visual meteorological conditions prevailed at the time and no flight plan was filed for the 14 CFR Part 91 sightseeing flight. The helicopter was substantially damaged and the commercial-rated pilot and two passengers were not injured. The flight was originating at the time of the occurrence.

The pilot stated that after takeoff while climbing through approximately 300 feet, the engine experienced a loss of power. He maneuvered the helicopter towards the beach and landed about 20 yards offshore. During the touchdown, the tailboom contacted the ground first due to the upsloping terrain resulting in damage to the tailboom. He further stated that the helicopter contained approximately 10 gallons of fuel at the time of the loss of engine power. The helicopter was recovered and examined.

Postaccident examination of the fuel system the day after the accident revealed the left tank contained an estimated 10 gallons of fuel, the right fuel tank contained an estimated 4-5 gallons of fuel. No contaminants were noted in fuel samples taken from both fuel tanks. Additionally, the fuel strainer was checked; a slight amount of either silt or sand contamination was noted. The carburetor bowl was also checked; a pint of water admixed with sand or silt was noted; further draining revealed fuel. An additional observation was that the left fuel tank vent line and vent line "B" nut were damaged. The damage to the vent line was located approximately 3-4 inches above the "B" nut. A copy of a statement from the airframe and powerplant mechanic is an attachment to this report. Following the initial examination of the fuel system, an examination of the engine was performed which revealed valve train continuity of all cylinders. Attempts to start the engine were unsuccessful; the magnetos were not producing spark. Both magnetos and the carburetor were retained for further examination.

Examination of the carburetor revealed the inlet screen contained a slight amount of contamination. The float level was correct and would remain steady with pressure applied to the inlet; no discrepancies were noted with the float. Disassembly of the carburetor revealed slight internal contamination. The main metering orifice of the altitude bellows valve and seat assembly was blocked by contamination which was easily removed. The altitude bellows valve and seat assembly flow checked good after removal of the contaminant. The nozzle assembly exhibited the correct part number and was blocked by contaminant (appeared to be sand). The air metering pin was also correct by part number and was set correctly. The inlet and discharge check valves of the accelerator pump checked good. Contamination of an unknown type was noted on the upstream side of the venturi, the contaminant tore easily upon removal. The size of the contamination matched the outside diameter of the venturi.

Examination of both magnetos revealed corrosion inside the cover. Both magnetos were placed on a test bench with slave ignition leads installed; no spark was noted from any of the ignition leads from both magnetos initially. The point gaps of both magnetos were within limits; the points of both were lightly dressed and high frequency tested. The left magneto was then placed on the test bench and operated with a slave ignition harness installed; spark was noted from all ignition leads except from one of the leads. The internal timing of the left magneto was correct. Corrosion was noted on two of the electrodes; the corrosion was cleaned and the magneto was placed on the test bench and produced spark at all ignition leads. Excessive arching was noted in the points area during the bench test; corrosion was noted in the area. The condenser checked good. The right magneto was placed on the test bench and operated after the point was cleaned; spark was noted from all ignition leads. The condenser was tested after the bench test, and failed.

The helicopter minus the retained carburetor, left magneto, and right magneto was released to Deanes L. Rowedder, insurance representative for Kern & Wooley, Llp, on March 5, 2001. The retained components were also released to Deanes L. Rowedder on March 28, 2001.

Pilot Information

Certificate:	Commercial	**Age:**	47,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	June 13, 1999
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	4200 hours (Total, all aircraft), 1200 hours (Total, this make and model), 3900 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N96MB
Model/Series:	47G-2 47G-2	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2443
Landing Gear Type:	Skid	**Seats:**	3
Date/Type of Last Inspection:	May 26, 2000 Annual	**Certified Max Gross Wt.:**	2450 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	11649 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	O-435-25A
Registered Owner:	PENGUIN AIR HELICOPTERS, INC.	**Rated Power:**	
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:**	Day
Observation Facility, Elevation:	DTS ,22 ft msl	**Distance from Accident Site:**	
Observation Time:	17:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	7 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	220°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	28°C / 24°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(FA14)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	17:44 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	BROADWAY HELICOPTERS FA14	**Runway Surface Type:**	
Airport Elevation:	12 ft msl	**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 None	**Latitude, Longitude:**	30.469989,-86.669616(est)

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	CLOVIS L JACKSON; BIRMINGHAM, AL
Original Publish Date:	July 10, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49309