Aviation Investigation Final Report

Location:	BIXBY, Oklahoma	**Accident Number:**	FTW98FA238
Date & Time:	May 24, 1998, 18:15 Local	**Registration:**	N9954F
Aircraft:	Bell 47G	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Witnesses reported observing the helicopter flying 'slow,' at an altitude below 100 feet agl, from east to west along the Arkansas River. The helicopter 'struck power lines' that spanned the river, descended vertically, and impacted a sandbar. The witnesses also reported that the engine 'sounded okay and it continued to run' until ground contact. The passenger reported that 'when they saw the powerline tower supporting the cables that cross the river at the bridge on Memorial Boulevard, they talked and decided they would turn around and go back to Haskell.' The passenger stated he didn't see the other power line, which cross the river prior to the bridge, or remember striking them. The unmarked power line was an estimated 60 to 75 feet agl. The three lower wires of the power line were observed to be frayed. Linear scratching and dull gray metal transfers were found on sections of one wooden main rotor blade's leading edge and underside. The forward portion of the center vertical console also exhibited linear scratching. Continuity was established to all flight controls.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain clearance from the power lines.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: CRUISE

Findings
1. OBJECT - WIRE,TRANSMISSION
2. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
3. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On May 24, 1998, about 1815 central daylight time, a Bell 47G helicopter, N9954F, owned and operated by the pilot, was substantially damaged when it impacted power transmission wires and terrain during cruise flight near Bixby, Oklahoma. Visual meteorological conditions prevailed, and a flight plan was not filed for the 14 Code of Federal Regulations (CFR) Part 91 local personal flight. The private pilot was fatally injured, and the sole passenger was seriously injured. The flight originated from a private residence in Haskell, Oklahoma.

During a interviews conducted by the investigator-in-charge, witnesses reported observing the helicopter flying "slow," at an altitude below 100 feet agl, from east to west along the Arkansas River. The helicopter "struck power lines" that spanned the river, descended vertically, and impacted a sandbar. The witnesses further reported that the engine "sounded okay and it continued to run" until ground contact.

The passenger reported that the flight departed Haskell between 1730 and 1800. They flew to the Arkansas River and started following it towards Tulsa. A few miles north of Haskell, they flew east from the river over a private airstrip and two small lakes adjacent to the airstrip. They then returned to the river and continued towards Tulsa. The passenger further reported that "when they saw the powerline tower supporting the cables that cross the river at the bridge on Memorial Boulevard, they talked and decided they would turn around and go back to Haskell." The passenger stated he didn't see the other power line, which crosses the river prior to the bridge, or remember striking the wires.

PERSONNEL INFORMATION

According to FAA records, the 56-year-old private pilot was issued a second class medical certificate on August 26, 1997, with a limitation for glasses. A review of the pilot's flight logbook revealed that on February 19, 1996, he passed the practical test for the addition of a rotorcraft rating to his private pilot cerificate.

AIRCRAFT INFORMATION

The helicopter was originally delivered to the US Army on March 6, 1954, as a Bell OH-13G, serial number 52-7952. Versatile Helicopter, Inc., converted the helicopter to a Bell 47G in 1978. According to FAA records, N9954F was issued a Standard Airworthiness Certificate in the normal category on March 10, 1978, as a Bell 47G, serial number 1192.

A review of the airframe and engine records did not reveal evidence of any anomalies or

uncorrected maintenance defects. The aircraft's last annual inspection was completed on May 5, 1998, at an aircraft total time of 4,034.6 hours.

WRECKAGE IMPACT INFORMATION

The accident site was located in the Arkansas River at latitude 35 degrees 57 minutes 2 seconds north and longitude 095 degrees 53.0 minutes west. The aircraft was found on a sandbar, 63 feet northwest of the power line, which crosses the river at an estimated altitude of 60 to 75 feet agl. The three lower wires of the unmarked power line were observed to be frayed.

The helicopter came to rest on its left side, on a magnetic heading of 340 degrees. Examination of the helicopter revealed that both wooden main rotor blades were fractured at the root end, and sections of both blades were separated and found within 324 feet of the main wreckage. Linear scratching and dull gray metal transfers were found on sections of the white blade's leading edge and underside. The forward portion of the center vertical console also exhibited linear scratching.

The aircraft's bubble canopy was shattered, and the engine basket and center fuselage tube structure was deformed upward. All four skid attachment tubes were displaced to the right, and the right skid was found separated. The tail boom was displaced down and to the right, and the tail rotor gearbox remained attached. One tail rotor blade was displaced aft, and the other blade had no apparent damage. Continuity was established to all flight controls.

MEDICAL AND PATHOLOGICAL INFORMATION

According to Medical Examiner R.L. Hemphil, M.D., Office of the Chief Medical Examiner, Tulsa, Oklahoma, an autopsy was not performed.

Toxicology findings were positive for 57.4 (ug/ml, /ug/g) Salicylate (aspirin) detected in urine.

ADDITIONAL DATA

The helicopter wreckage was released to the owner's wife on May 25, 1998.

Pilot Information

Certificate:	Private	**Age:**	56,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	August 26, 1997
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	2210 hours (Total, all aircraft), 83 hours (Total, this make and model), 21 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N9954F
Model/Series:	47G 47G	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1192
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	May 5, 1998 Annual	**Certified Max Gross Wt.:**	2350 lbs
Time Since Last Inspection:	5 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4040 Hrs	**Engine Manufacturer:**	Franklin
ELT:		**Engine Model/Series:**	O-335-5B
Registered Owner:	RICHARD C. HAMM	**Rated Power:**	210 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:**	Day
Observation Facility, Elevation:	TUL ,677 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	18:53 Local	**Direction from Accident Site:**	345°
Lowest Cloud Condition:	Scattered / 5000 ft AGL	**Visibility**	5 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	180°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	31°C / 19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	HASKELL , OK (NONE)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	00:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	35.939666,-95.869003(est)

Administrative Information

Investigator In Charge (IIC):	Wigington, Douglas
Additional Participating Persons:	BRYON R WALTON; OKLAHOMA CITY , OK
Original Publish Date:	July 2, 1999
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=20422