



National Transportation Safety Board Aviation Accident Final Report

Location:	ST. PETERSBURG, Florida	Accident Number:	ATL00FA048
Date & Time:	April 25, 2000, 12:16 Local	Registration:	N428MB
Aircraft:	Eurocopter BK117-A3	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The medical service helicopter had completed a patient drop-off and was enroute to its' home base when it collided with a 649 foot radio tower. The operator stated that the flight was flying a newly established route in response to local noise complaints. Examination of the rotor system showed several indentations along the leading edges of two main rotor blades. There were also fresh mirroring indentations at the 480-foot level of the steel structure of the tower. No mechanical problems were discovered during the examination of the helicopter.

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 that resulted in the in-flight collision with a tower.

Findings

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

Findings

1. OBJECT - TOWER
2. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On April 25, 2000, at 1216 eastern daylight time, an Eurocopter BK117, N428MB, operating as Bayflite-3, collided with a radio transmission tower located on the Weedon Island State Preserve in St. Petersburg, Florida. The air medical flight, Bayflite-3, was operated by Rocky Mountain Helicopters under the provisions of Title 14 CFR Part 91 positioning flight with no flight plan filed. Visual weather conditions prevailed at the time of the accident. The medical evacuation helicopter was destroyed; the commercial pilot and his passengers were fatally injured. The local flight departed Bayfront Medical Center, in St. Petersburg, Florida, at 1212, and was enroute to the Bayflite operations at St. Joseph Hospital in Tampa, Florida.

According to the operator, Bayflite-3 had completed a patient drop-off and was enroute to the Bayflite operation in Tampa, Florida. The operator also stated that the flight was flying a newly established route from the Bayfront Medical Center to St. Joseph Hospital. The new routing was in response to noise complaints from neighborhoods along the previously direct route. According to an eyewitness driving on San Martin Blvd., the helicopter was flying northeast at about 500 feet above the ground. As the eyewitness approached the radio transmission tower in the preserves, he noticed the helicopter as it collided with the radio transmission tower guy wire and the steel tower structure 480 feet above the ground. The helicopter continued several hundred feet northeast and crashed into a mangrove. Eyewitnesses and rescue personnel responded to the accident site within minutes of the accident.

PERSONNEL INFORMATION

The pilot held a commercial pilot certificate with helicopter and instrument ratings. His total flight time was 4,367 hours, of which approximately 169 hours were flown in the Eurocopter BK117 helicopter. The pilot held a second-class medical certificate, dated April 19, 2000, valid with no limitations or waivers. According to the pilot training records, he was hired as a helicopter pilot by Rocky Mountain Helicopter on June 1, 1999, and completed his initial training on July 17, 1999. According to the Rocky Mountain Helicopter, the pilot had flown in the immediate area of the accident for 15 years with other helicopter operations, and was familiar with local obstructions.

The two medical attendants on board the flight were employees of St. Joseph Medical Hospital in Tampa, Florida. The operator stated that, the two accident medical personnel were not considered as flight crewmembers in accordance with Rocky Mountain Helicopter General Operating Manual.

AIRCRAFT INFORMATION

The Eurocopter BK117, N428MB, was owned by General Electric Capital Corporation of Dallas, Texas, and operated by Rocky Mountain Helicopters, of Provo, Utah. N428MB was a helicopter powered by two Honeywell/Lycoming LTS101-650-B1 engines. A review of the airplane maintenance logbooks showed that the airplane was maintained in accordance with applicable

Federal Aviation Regulations. The last annual inspection was completed on March 15, 2000. The helicopter had flown 15 hours since the last inspection, and had accumulated a total of 6,642 hours. A review of the airframe maintenance records showed that, an AARNAV SYSTEMS MFD 5000 SERIES GeoNet Datalink System. The Datalink system is a wireless transfer network used for tracking vehicle. This system also extends communication range beyond line of sight. According to the local station manager, the pilot was familiar with the operation of the newly installed system, and had used the same system at his previous employer. A review of recovered plots from the ground station showed numerous towers and vertical obstructions in the immediate area of the accident site. The plots showed precise heights of the various towers. N428MB was certificated as a single pilot helicopter.

METEOROLOGICAL INFORMATION

The Saint Petersburg, Florida, 1153 surface observation, reported sky clear, visibility 10 miles, wind 270 degrees at twelve knots. The altimeter setting was 29.92 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

Examination of the accident site disclosed that wreckage debris from the helicopter was scattered over an area 1/2 mile long and 1/4 mile wide. Wreckage debris was orientated on a northeasterly magnetic heading. The main wreckage was approximately 1/2 mile northeast of the radio transmission tower, and debris from the main rotor blades was scattered along a line between the two locations. The main wreckage was found in the wetlands of the preserves partially submerged and inverted on the left side of the fuselage. The nose section of the helicopter was buried in approximately three feet of mud and water. The main rotor head assembly and the top part of the fuselage were exposed. The transmission assembly was partially attached to the normal attached point. Interior debris from the helicopter was also scattered in the immediate vicinity of the main wreckage. An unspecified amount of jet fuel was present at the impact site.

Examination of the main rotor assembly disclosed that the four main rotor blades were sheared from the rotor hub blade grips. The green main rotor sleeve was fractured approximately 12 inches outboard of the pendulum absorbers. The yellow main rotor 12 to 15 inches outboard the pendulum absorbers. The blue main rotor blade was located about 200 feet north of the main wreckage. The red main rotor blade was located several hundred feet north of the downed radio tower. Examination of the red blade leading edge showed a two-inch chordwise mark adjacent to the trim tab position. The trailing edge blade structure was split open from the red rotor blade the root area outboard to the blade tip. A large section of the trailing edge of the red rotor blade separated from the blade. The blue main rotor blade also exhibited leading edge chordwise damage forward the installation of the trim tab assembly.

The transmission and both engine assemblies were located partially attached to the airframe. Examination of the engine assemblies showed that the aft engine mounts were separated from the normally attach point. The examination of the engines also revealed that the compressor assemblies turned freely during the follow-up examination. During the engine examination the engine gearbox assemblies it was discovered that the assemblies were fractured. Impact debris was discovered throughout the engine internal power train.

The tail boom, with the tail rotor assembly, was located approximately 300 feet south west of the main wreckage. Examination of the tailboom assembly revealed that the separation from the main airframe in the vicinity of the first hanger bearing installation. The tail rotor gearbox assembly remained attached to the tailboom.

The examination of the flight control system revealed evidence that all rod end connections and push pull control tubes had been secured in their respective positions. The examination of the control input points were also secured and were subjected to impact forces. Finally, examination of the entire flight control system failed to disclose a mechanical malfunction or subsystem component failure.

MEDICAL AND PATHOLOGICAL INFORMATION

The postmortem examination of the pilot was performed by Dr. Laura Hair at the office of the Pinellas County Medical Examiner in Largo, Florida. 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

The radio tower was constructed at latitude 27 51" 23" and Longitude 82 37' 25" or, 94th Avenue at San Martin, St Petersburg, Florida, on December 1977. The AM/FM radio tower was 649 foot tall. The Federal Communication Commission Registration Number is 103-6840. An omni directional strobe light was mounted on the top of the steel structure. There were also two sets of three lights installed at undetermined location on the tower structure. According to the FCC obstruction marking and lighting requirements are described in Federal Aviation Administration Advisory Circular 70/7460-1.

Examination of the tower assembly disclosed that the entire structure fell in the immediate vicinity of the installation. The support cable network was fractured and were scattered between the ground anchor and the tower installation. Further examination of the steel tower structure showed several fresh marks at the 480-foot level of the structure.

Though not required by Rocky Mountain Helicopters Operation Manual, there was no hazard map of obstructions in the local operation area available to the pilot. The station manager reported that hazards and minimum operating altitudes were stressed at safety meetings but flight operation decisions for each flight were always left to the discretion of the pilot in command.

The operator also stressed that the route flown by the accident helicopter was not a new or assigned route established by flight operation. Rocky Mountain Helicopter operation stated that, Pilots were advised of noise complaints from the shoreline of Snell Isle Subdivision, an requested not to overfly that area, but were not instructed to fly a particular route".

The helicopter wreckage was released to Mr. John L. Acord, an Aircraft Inspector with Rocky Mountain Helicopter of, Provo, Utah.

Pilot Information

Certificate:	Commercial	Age:	38, Male
Airplane Rating(s):	None	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Helicopter	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	April 19, 2000
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	4367 hours (Total, all aircraft), 169 hours (Total, this make and model), 54 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Eurocopter	Registration:	N428MB
Model/Series:	BK117-A3 BK117-A3	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	7088
Landing Gear Type:	Skid	Seats:	7
Date/Type of Last Inspection:	March 15, 2000 AAIP	Certified Max Gross Wt.:	7555 lbs
Time Since Last Inspection:	19 Hrs	Engines:	2 Turbo shaft
Airframe Total Time:	6642 Hrs	Engine Manufacturer:	Honeywell/Lyc
ELT:	Installed	Engine Model/Series:	LTS101-650-B1
Registered Owner:		Rated Power:	600 Horsepower
Operator:		Operating Certificate(s) Held:	On-demand air taxi (135)
Operator Does Business As:		Operator Designator Code:	R7MA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	PIE ,11 ft msl	Distance from Accident Site:	15 Nautical Miles
Observation Time:	11:53 Local	Direction from Accident Site:	300°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	12 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	270°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	21 °C / 16 °C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	
Departure Time:	12:12 Local	Type of Airspace:	

Airport Information

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

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	2 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Fatal	Latitude, Longitude:	27.850505,-82.630424(est)

Administrative Information

Investigator In Charge (IIC):	Powell, Phillip
Additional Participating Persons:	LINDA NEVIN; TAMPA , FL
Original Publish Date:	July 17, 2001
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=49042

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).