



Aviation Investigation Final Report

Location:	TAMPA, Florida		Accident Number:	MIA95GA062
Date & Time:	January 18, 1995, 19:5	57 Local	Registration:	N4TP
Aircraft:	HUGHES	369E	Aircraft Damage:	Destroyed
Defining Event:			Injuries:	1 Fatal, 1 Minor
Flight Conducted Under:	Public aircraft			

Analysis

POLICE OFFICERS OBSERVED THE HELICOPTER IN THE VICINITY OF A BRIDGE CONDUCTING AN OVER WATER SEARCH FOR A DROWNING VICTIM. THE HELICOPTER WAS OBSERVED TO START A LEFT DESCENDING TURN AND CONTINUED IN THE DESCENT UNTIL THE HELICOPTER COLLIDED WITH THE WATER. THE WEATHER CONDITIONS WERE DESCRIBED AS VERY DARK WITH LIGHT WIND. THE ONLY VISIBLE LIGHT WAS THAT EMANATING FROM THE BRIDGE.

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 AIRCRAFT CONTROL AS A RESULT OF BECOMING SPATIALLY DISORIENTED WHILE MANEUVERING. CONTRIBUTING TO THE ACCIDENT WAS THE DARK NIGHT WITH NO VISIBLE HORIZON.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT Phase of Operation: MANEUVERING

Findings 1. (C) AIRCRAFT CO

- 1. (C) AIRCRAFT CONTROL NOT MAINTAINED PILOT IN COMMAND
- 2. (C) SPATIAL DISORIENTATION PILOT IN COMMAND 3. DESCENT - INADVERTENT - PILOT IN COMMAND

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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER Phase of Operation: MANEUVERING

Findings

4. TERRAIN CONDITION - WATER

5. (F) LIGHT CONDITION - DARK NIGHT

Factual Information

HISTORY OF FLIGHT

On January 18, 1995, about 1957 eastern standard time, a Hughes 369E, N4TP, registered to the City Of Tampa Police Department, Tampa, Florida, crashed into Tampa Bay while maneuvering on a public-use flight. The helicopter was destroyed. The commercial pilot sustained minor injuries. The aerial observer drowned, and was located on January 26, 1995. Visual meteorological conditions prevailed, and no flight plan was filed. The flight originated from Tampa International Airport, Tampa, Florida, about 45 minutes before the accident. The Tampa Police Department requested the NTSB to conduct an investigation of the accident on January 23, 1995.

Police officers who observed the accident stated they were in the vicinity of the Howard Franklin Bridge conducting a ground search for a drowning victim in Tampa Bay, while the helicopter was conducting an air search. The helicopter was observed to start a left descending turn and continued in the descent until the helicopter collided with the water. The weather conditions were described as very dark to the southeast, light wind, and the only visible horizon was from the light on the Howard Franklin Bridge.

Transcripts of recorded communication between Tampa Tower and N4TP, revealed the pilot departed Tampa International Airport down low at 19:12:07, en route to an area just north of the Gandy Bridge, looking for a body in the water. The pilot reported on- site at 19:15:06. At 19:33:03, the pilot requested, and received clearance from Tampa Tower, to work an area down low, north of the Howard Franklin Bridge. There was no further radio communication with N4TP. Review of the Discrete Area Radar Tracking System, National Track Analysis Program (NTAP), indicates N4TP was at 200 feet msl in a right turn at 19:56:04. At 19:56:51, N4TP was observed in a left descending turn. Radar contact was lost at 19:57:05.

PERSONNEL INFORMATION

Information pertaining to the pilot, Daniel P. Gilligan, is contained in NTSB Form 6120.1/2, and NTSB Form 6120.4.

Review of personnel records for the aerial observer, Norris Epps, revealed he attended a 4hour course in water safety in December 1988, while attending the police academy. He recorded on an evaluation attachment sheet on December 19, 1992, that he was a nonswimmer.

AIRCRAFT INFORMATION

Information pertaining to aircraft information is contained in NTSB Form 6120.4.

METEOROLOGICAL INFORMATION

Visual meteorological conditions prevailed at the time of the accident. Official sunset was 1632 hours with the end of twilight at 1717 hours. The pilot stated the wind and water was calm, and he could see the lights on both the Howard Franklin Bridge and the Gandy Bridge.

WRECKAGE AND IMPACT INFORMATION

The wreckage of N4TP was located in 15 feet of water, about 190 yards from the southeast point of the Howard Franklin Bridge, by the Tampa Police Department Underwater Search and Recovery Team on January 18, 1995. The helicopter was lying on its left side with the landing gear attached. The tailboom had separated from the fuselage. The fuel system was not ruptured. Four of the five main rotor blades remained attached to the main rotor system.

The wreckage of N4TP was examined on January 27, 1995. Examination of the helicopter revealed damage consistent with the helicopter colliding with the water in a left turn, nosedown attitude. The forward fuselage and cockpit structure sustained accordion crushing extending from left to right. The instrument panel separated from its mounting points. The canopy, left forward cockpit door, aft fuselage boom fairing and engine inlet fairing separated from the helicopter. The tailboom experienced an overload fracture and separation 12 inches aft of the tailboom attach point, 20 inches aft of the tailboom attach point, and 60 inches aft of the tailboom attach point. A main rotor blade strike was present on the tailboom between the second and third separation at a 30-degree angle. The remaining 2 feet of the tailboom was attached to both the vertical stabilizer and horizontal stabilizer.

Examination of the main rotor system and the tail rotor system revealed no evidence to indicate a precrash failure or malfunction. The green, yellow, white, and red main rotor blades remained attached to the main rotor system. The blue main rotor blade separated 1 foot outboard of the inboard root end. The remaining inboard blade section remained attached to the pitch case assembly. Paint transfer was present on the white, blue, and yellow main rotor blades from contact with the tailboom assembly or fuselage of the helicopter. Impact marks were present on the on the main rotor blades droop striker plates, and pitch case striker strips. The strap packs were displaced and/or fractured. Both tail rotor blades were attached and sustained corrosion damage from salt water immersion.

Examination of the airframe, and flight control system revealed no evidence to indicate any precrash mechanical failure or malfunction. All components necessary for flight were present. Continuity of the flight control system was confirmed for pitch, roll, and yaw.

Examination of the main transmission, engine to transmission driveshaft, overrunning clutch, tailrotor transmission, and chip detectors revealed no evidence of preimpact failure or malfunction.

Examination of the fuel system revealed all coupling nuts and their respective fittings on all fuel, lube, and air lines on the engine were secured, and evidence of torque paint was observed to all B-nuts. The fuel tank was not ruptured and contained fuel. Fuel and a trace of water were present in the fuel filter bowl. Fuel was also found in the fuel line from the fuel nozzle to the in-line check valve and in the fuel line between the firewall and the engine-driven fuel pump.

The engine was removed and transported to an authorized repair facility in Miami, Florida, for further analysis. Examination of the engine revealed no evidence of a precrash failure or malfunction. The N1 drivetrain rotation was restricted in the assembled state. Disassembly of the engine revealed the restriction was due to severe corrosion and magnesium meltdown of the N1 accessory bearings in the gearbox and also debris lodged within the compressor axial rotor. Moderate to severe foreign object damage was present on the leading edges of the first stage compressor blade and trailing edges of the inlet guide vanes. Fiberglass deposits were located throughout the first, second, third, and fourth stages and within the diffuser vane assembly. About 50 percent of the shroud circumference in the exducer area exhibited impeller to compressor shroud rub indications. A slight blade tip rub indication was observed at the 6:00 position of the furth stage turbine nozzle, third stage wheel side. Dirt deposits were noted attached to the first stage turbine wheel rim and on the suction side of several airfoils.

MEDICAL AND PATHOLOGICAL INFORMATION

The pilot, Daniel P. Gilligan, sustained minor injuries. Toxicology studies of specimens were not requested or performed.

Post-mortem examination of the aerial observer, Norris Epps Jr., was conducted by Dr. Lee R. Miller, Associate Medical Examiner, District thirteen, Tampa, Florida, on January 26, 1995. The cause of death was drowning. Post-mortem toxicology studies of specimens from the aerial observer was performed by the Toxicology Section, Hillsborough County Medical Examiner Department, Tampa, Florida. These studies were negative for neutral, basic, and acidic drugs.

SURVIVAL ASPECTS

The helicopter was equipped with three Eastern Aero-Marine Life Preservers, model KSD-35HC2 (adult), located between the pilot and aerial observer seats. One life preserver was recovered from Tampa Bay, and was issued to Officer Jeffrey E. Fife. Examination of the life preserver revealed the last recorded inspection date was May 1986. The Tampa Police Aviation Unit SOP does not address aviation life support equipment, inspection of equipment, or training of personnel using the equipment. Pilots were issued life preservers, and were provided with verbal training in the deployment and use of life preservers. The aerial observer was not briefed on the use of the life preserver, and the observer briefing sheet does not address the use of aviation life support equipment.

TEST AND RESEARCH

Advisory Circular 60-4 describes spatial disorientation, and is included as a part of this report.

ADDITIONAL INFORMATION

The helicopter was released to Jeffrey E. Fife, Chief Pilot, City of Tampa, Police Department Aviation Unit on January 27, 1995. The engine was released to Richard Fernandez, Director of Maintenance, City of Tampa, Police Department Aviation Unit on February 7, 1995.

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	33,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medicalw/ waivers/lim	Last FAA Medical Exam:	June 28, 1994
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	2200 hours (Total, all aircraft), 221 hours (Total, this make and model), 1999 hours (Pilot In Command, all aircraft), 155 hours (Last 90 days, all aircraft), 80 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	HUGHES	Registration:	N4TP
Model/Series:	369E 369-E	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	0129E
Landing Gear Type:	High skid	Seats:	4
Date/Type of Last Inspection:	December 31, 1994 Annual	Certified Max Gross Wt.:	2100 lbs
Time Since Last Inspection:	70 Hrs	Engines:	1 Turbo shaft
Airframe Total Time:	5065 Hrs	Engine Manufacturer:	ALLISON
ELT:	Not installed	Engine Model/Series:	250-C20B
Registered Owner:	CITY OF TAMPA POLICE DEPT	Rated Power:	420 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:	TPA ,27 ft msl	Distance from Accident Site:	4 Nautical Miles
Observation Time:	19:53 Local	Direction from Accident Site:	30°
Lowest Cloud Condition:	25000 ft AGL	Visibility	12 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/ None	Turbulence Type Forecast/Actual:	/
Wind Direction:	0°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	17°C / 15°C
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	19:12 Local	Type of Airspace:	Class B

Airport Information

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

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal, 1 Minor	Latitude, Longitude:	27.959594,-82.489341(est)

Administrative Information

Investigator In Charge (IIC):	Smith, Carrol
Additional Participating Persons:	TIMOTHY W MONVILLE; MIAMI , FL JEFFREY E FIFE; TAMPA , FL JEFFREY W EDWARDS; INDINAPOLIS , IN JOHN D KURTZ; MESSA , AZ
Original Publish Date:	June 19, 1995
Last Revision Date:	
Investigation Class:	<u>Class</u>
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=37672

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available <u>here</u>.