



National Transportation Safety Board Aviation Accident Factual Report

Location:	MIAMI, FL	Accident Number:	MIA00FA102
Date & Time:	03/03/2000, 1529 EST	Registration:	N611BC
Aircraft:	McDonnell Douglas HU-600N	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General Aviation -		

HISTORY OF FLIGHT

On March 3, 2000, at about 1529 eastern standard time, a McDonnell Douglas HU-600N, N611BC, registered to General Electric Capital Corporation, operated by WTVJ NBC 6, as a 14 CFR Part 91 photography flight, crashed in a residential area while maneuvering in the vicinity of Miami, Florida. Visual meteorological conditions prevailed and no flight plan was filed. The helicopter was destroyed by a post crash fire. The airline transport pilot and news photographer were fatally injured. The flight originated from Kendall-Tamiami Executive Airport (TMB), Miami, Florida, about 26 minutes before the accident.

Friends of the pilot who were flying in another helicopter (N97UP) stated N611BC (Sky 6) was inbound to TMB when they talked to him on an air to air frequency. They got a visual location on each other and N611BC made a 180-degree turn, passed below them, and then joined up on their right side with about 300 yards separation in straight and level flight. They talked for a while and then Sky 6 departed. The pilot of N97UP observed Sky 6 initiate a descent which he estimated to be about a 15-degree nose-down attitude. His passenger estimated the descent at about a 45-degree nose-down attitude. The pilot observed the nose pull up to about a 30-degree nose-up attitude, and then pitched up about 70-degrees. The passenger stated the nose pulled up to an attitude past the 90-degree point. The helicopter yawed to the left, held there and appeared to be sliding backwards. The nose started to pitch down and the tail boom assembly separated. The helicopter descended and collided with the terrain.

Witnesses on the ground who observed the accident stated they observed both helicopters in straight and level flight. The accident helicopter nose pitched down and then pitched up to an almost vertical nose-up attitude. The helicopter yawed to the left, started to descend backwards, the nose pitched down and the tail boom separated. The helicopter started rotating to the right until it disappeared from their view. Black smoke was then observed coming from the ground up.

A helicopter pilot for channel 10 television was dispatched to cover the same bus/train

accident as Sky 6. He contacted Miami tower to get authorization to enter into class "B" airspace and was informed that Sky 6 was over the scene. He attempted to locate Sky 6 visually but was unable to do so. He asked his cameraman to see if he could locate him with his equipment which was successful. He then informed Miami tower that he had Sky 6 in sight. He continued to monitor the Miami tower frequency and the VHF radio air-to-air frequency (123.025.) He subsequently heard Sky 6 inform Miami tower that he was clear of the area. A short time later he heard the Sky 6 pilot talking on the air-to-air frequency with another pilot. Based on their conversation he figured that they knew each other. He overheard the pilot of Sky 6 tell the other pilot to keep flying east bound. At about 1530, he heard the pilot of Sky 6 state, "watch this." There were no other communications heard between Sky 6 and the other pilot. The Sky 10 pilot stated he completed his mission over the bus/train accident and informed Miami tower that he was returning to TMB. He turned towards TMB and observed smoke. He thought it was a brush fire, and then he noticed that it was black smoke, and knew it had to be a house or vehicle fire of some sort. He headed towards the smoke. Upon arrival his cameraman informed him that it was a helicopter. He contacted the flight coordinator on frequency 123.025, and asked him to check on the status of their aircraft. The coordinator asked him what he thought had happened. He asked the coordinator if he had heard anything, and the coordinator replied, "watch this."

A friend of the deceased Sky 6 pilot stated that he had a conversation with the pilot during the first part of February 2000. The pilot described a maneuver that he had been performing in the Sky 6 Notar helicopter. The maneuver entailed a high speed pass down a runway followed by a steep pull-up. At the top of the pull-up, the Sky 6 pilot informed him that he would reverse the heading by 180-degrees, and then recover from the ensuing dive similar to a hammerhead turn in a fixed wing aircraft. He also stated that the control forces during the recovery from the maneuver were extremely high.

Two helicopter pilot's for different local area television stations stated the deceased pilot would normally arrive on a news scene and would stop the Sky 6 helicopter by conducting a cyclic climb maneuver. He would pitch the nose of the helicopter up to about a 45 degree angle or a near vertical nose-up attitude, and then bring the helicopter to a hover. He would normally be lower than the other helicopters on scene and would conduct high speed sideward flight. When he would depart a news site, he would make a very nose low departure, and when he departed TMB he would fly down the taxiway between 30 to 40 feet and he would make a cyclic climb departure.

Cameramen from channel 6 and the employer of the deceased pilot did not substantiate all of the statements made by the 2 helicopter pilots from the other television stations. One cameramen stated 2 days before the accident he was standing in the main editing area at the TV station when the deceased photographer stated he would be flying with the deceased pilot on Friday March 3, 2000. The photographer stated he was concerned about flying with the deceased pilot because he was an aggressive pilot. He informed them that when they left TMB with the helicopter parked on a dolly that the pilot would initiate a steep high bank turn right after takeoff. He stated he did not mind the pilot doing it a couple of times, but after 7 or 8 times it became annoying. He also stated he discussed his displeasure of the maneuver with the pilot because he did not feel there was any need to be performing that type of maneuver.

An attorney who was receiving turbine instruction at TMB on the day of the accident stated he was walking out to the helicopter when he met his instructor pilot returning from a flight with another student. As they approached the helicopter the other pilot stated, "There he is in another one of those 60 degree banks!" The attorney stated, "I looked where he was looking (toward the NE of where we were walking) and saw Sky 6 on a heading of about 180 at an altitude of about 200 feet, again over the center of TMB. Just as Keith had said, Sky 6 was in a bank of at least 60 degrees. I could see the entire rotor head and most of the rotor disk. The bank was so steep that the disk was almost a perfect circle, and Sky 6 was dropping-losing altitude at a high rate of speed. It soon disappeared from view, blocked from our sight by buildings. My initial reaction was that it was too low to recover from such a high rate of descent and must have crashed. When there was no crash or explosion, however, I said something like "He is really hot dogging it!" My thought at the time was that the pilot must have a death wish, or he was perhaps demonstrating the capabilities of the aircraft to someone. However it struck me that 200 feet above the center of TMB was not a good place to demonstrate such a dangerous maneuver and wondered what the pilot was doing. At this point Jim said that he had seen Sky 6 earlier in the day performing some various maneuvers and that Sky 6, when he was standing near the FKC helicopters, passed very fast and very low over his head. He said something about "getting a haircut." I asked if Paul Barth was flying it and he said no, it was Ruben (something-the name did not stick in my mind). At that time or later he said that Ruben "was just back from Oregon" and was working for Paul Barth again....

After we returned from the Jet Ranger flight Todd and Jim and I were sitting in Jim's FKC office chatting when the phone rang with a call from one of Jim's friends who said that one of the news helicopters had crashed....Jim Billberry remarked that if Sky 6 had crashed it might have been caused by Ruben Rivera "rolling" or inverting Sky 6. He said something like "Ruben knows how to roll it, and he has done it before."

The instructor stated in a subsequent interview that the scuttle butt going on around the airport was that the deceased pilot had rolled or inverted Sky 6.

Review of recorded communications between Sky 6, Sky 10, N97UP, and Tamiami Air Traffic Control Tower (ATCT), Local Control North, Miami ATCT, Local Control North, and Miami ATCT, Guard VHF Emergency position revealed that Sky 6 contacted and received clearance for an echo departure from TMB at 2003:45. At 2008:15, Sky 6 contacted Miami ATCT six miles south of the airport and was cleared into class "B" airspace. Sky 6 informed the controller that he would remain about 2 miles south of the airport. Sky 10 contacted Miami ATCT at 2016:32 off of TMB and informed the controller that he would be working south southwest of the airport. Sky 10 was cleared into class "B" airspace and was informed to look out for Sky 6. At 2019:13, Sky 10 informed Miami ATCT that he had Sky 6 in sight. At 2020:33, Sky 6 informed Miami ATCT that he was clear of the class "B" airspace. Miami ATCT informed Sky 6 that radar service was terminated, frequency change approved, and to squawk VFR. At 2024:06, N97UP contacted Tamiami ATCT and requested an echo departure. The request was approved, and N97UP was advised to use caution due to inbound traffic. At 2024:40, Sky 6 contacted Tamiami ATCT and informed the controller that he was 6 miles northeast, inbound for an echo arrival. Sky 6 was advised to proceed with caution that traffic was outbound on echo. The controller contacted N97UP and informs him of the inbound Sky 6 traffic. N97UP

requested and received approval for a frequency change. At 2026:02, Sky 6 informed Tamiami ATCT that he was going to join up with N97UP on the outbound leg. At 2029:17, N97UP contacted Miami radio on guard VHF emergency position and states, "yeah we got an emergency got a helicopter down." At 2034:29, Sky 10 contacted Tamiami ATCT and stated, "uh yes sir I'd like to report a possible aircraft down in the vicinity here where I'm at."

Review of the Discrete Area Radar Tracking System, National Track Analysis Program, (NTAP), reveals that Sky 6 was initial radar contact, 300 feet, heading 002 degrees in class "B" airspace at 2009:57. Sky 6 was observed maneuvering within the airspace and the altitude varies between 700 to 200 feet. Sky 6 leaves class "B" airspace at 2020:22 and radar service is terminated at 2020:34, heading 360 degrees at 300 feet. Sky 6 is observed maneuvering on the edge of the class "B" airspace from 2020:34 to 2022:53. The altitude varies from 400 to 100 feet. At 2022:53, Sky 6 exits class "B" airspace at 400 feet, and flies towards the southwest. At 2024:11, Sky 6 descends to 300 feet. At 2025:02, N97UP is initial radar contact, 200 feet departing TMB. At 2026:21, Sky 6 descends to 200 feet and is observed on radar starting a left turn. N97UP is at 500 feet heading east bound. At 2027:11, Sky 6 is located to the right of N97UP. Both helicopters are at 600 feet heading east bound. At 2027:25, both helicopters are at 800 feet heading east bound. At 2028:02, Sky 6 is at 600 feet heading east bound and N97UP is at 800 feet heading east bound. The last radar return for Sky 6 was recorded at 2028:16. Sky 6 is at 1,000 feet and N97UP is at 800 feet. N97UP was observed on radar flying around the local area and landed at TMB at 2116:39.

PERSONNEL INFORMATION

The Federal Aviation Administration, Information Management Section records, Oklahoma City, Oklahoma indicates that the pilot was found guilty and convicted on or about August 5, 1988, in the United States District Court, Northern District of Florida, of conspiracy to import, importation, conspiracy to possess with intent to distribute, and possession with intent to distribute, over 100 kilograms of marijuana involving the use of an aircraft, and he was sentenced to the Federal Prison Center in Atlanta, Georgia. All previous airman certificates held by the pilot at the time of the conviction were revoked on May 21, 1992, pursuant to 14 CFR Part 61.15 (a) (2). The pilot was employed by Helicopter Aviation Services Leasing Inc., on March 5, 1990. He was one of the contract pilots flying the Sky 6 helicopter, for WTVJ/NBC television station. He held an airline transport pilot certificate with ratings and limitations for rotorcraft-helicopter, commercial privileges, airplane single engine land, glider. In addition, the certificate had a restriction stating, carrying passengers in airplanes for hire is prohibited at night and on cross-country flights of more than 50 nautical miles. The certificate was issued on May 23, 1999. He was issued a first class medical certificate with no limitations issued on May 21, 1999. Review of the pilot's logbook revealed his last recorded entry was on January 31, 2000. The first recorded flight in the HU-600N was on February 12, 1998. The pilot had recorded as logged 5.9 dual hours in the HU-600N and 520.4 hours as the pilot-in-command.

The passenger was employed by WTVJ/NBC channel six television station on March 5, 1990, as a photographer. He was on the authorized dispatcher list to fly in the Sky 6 helicopter, however there was no record located indicating that he had completed the required safety briefing and that he had signed the HASL-001 consent form required by the Sky 6 Operations

and Procedures Manual.

AIRCRAFT INFORMATION

Review of the helicopter maintenance records revealed the aircraft completed a 100/150/300 hour inspection on January 2, 2000, and the aircraft was determined to be in an airworthy condition. The maintenance records revealed compliance with all manufactures Service Bulletins and FAA Airworthiness Directives.

METEOROLOGICAL INFORMATION

The nearest weather reporting facility at the time of the accident was Kendall-Tamiami Executive Airport, Miami, Florida. The 1450 surface weather observation was: 3,500 broken, visibility 10 miles, temperature 84 degrees Fahrenheit, dew point temperature 42 degrees Fahrenheit, wind from 290 degrees at 6 knots, and altimeter 29.98 inHg. Visual meteorological conditions prevailed at the time of the accident.

WRECKAGE AND IMPACT INFORMATION

The main wreckage of N611BC was located in two different locations. The tail boom assembly had separated from the main fuselage at station number 275, and was located on the back porch adjacent to a swimming pool located at 9305 SW 122nd Lane Miami, Florida, in the Oak Ridge Residential complex. The main body of the wreckage was located on an island planter (flower bed) adjacent to a circular drive at the north entrance of Oak Ridge near SW 121 Street and 93rd Avenue.

Examination of the crash site revealed the helicopter collided with the ground in a nose down right roll attitude on a heading of 020-degrees magnetic separating the nose mounted camera. At least five rotor blade strikes were present on the ground located to the right rear of the initial point of ground contact. The helicopter rolled to the left and yawed right where the remnants of the tail boom struck a tree, separated with the remainder of the left skid and flotation device, and came to rest on its left side on a heading of 135-degrees magnetic. The left and right fuel bladders ruptured, and the airframe was consumed by post crash fire from fuselage station 0.0 to fuselage station 275.0. The collective pitch was found in the full down position and the throttle was full open. The tail boom slot assemblies sustained extensive heat and fire damage, and was separated from the tail boom. The left skid separated from the strut attach point, and the skid tow separated 2 1/2 feet aft of the skid toe. The right skid separated 2 1/2 feet aft of the skid toe. The center skid section was consumed by post crash fire and both struts remained attached to the airframe and were damaged by post crash fire.

Examination of the main rotor system revealed excessive damage due to main rotor blade lead/lag excursions and high flapping angles. One strap assembly had evidence of overload fractures of several laminates while the remaining five strap pack assemblies remained attached and exhibited evidence of overload bending. All six main rotor blade pitch

case housings and attached components as well as the upper main rotor system flight controls were consumed by post crash fire. The main rotor transmission chip detectors were removed and no evidence of metal particles were present.

All six main rotor blades exhibited evidence of lead lag bending. Five of the six main rotor blades exhibited evidence of rotational damage in the form of chordwise scarring. White paint transfer marks were present from contact with the tail boom assembly. Two main rotor blades had evidence of complete overload fractures. One main rotor blade was separated four feet inboard from the main rotor blade tip, and was located two houses north of the crash site at 1250 SW 93 Avenue. Another main rotor blade separated 4 inches inboard from the main rotor blade tip.

Examination of the engine to transmission interconnecting drive shaft revealed evidence of overload failures of both couplings. The output shaft from the main transmission to the fan gear box was consumed by post crash fire. The forward coupling had evidence of overload failure. The aft coupling remained attached to the fan gear box input shaft. The NOTAR fan pitch control assembly was damaged by post crash fire. When rotated by hand the assembly provided pitch input to the fan pitch plate.

Examination of the tail boom assembly revealed evidence of three main rotor blade strikes in addition to the fracture that resulted in the separation of the tail boom at about fuselage station 275.0. One strike extended perpendicular across the top of the tail boom assembly in the form of yellow paint transfer from the main rotor blade tip cap. The additional main rotor blade strikes on the tail boom occurred from about fuselage station 280.0 to fuselage station 291.0, and from fuselage station 291.0 to fuselage station 295.0. The upper left vertical stabilizer separated from the horizontal stabilizer, and the rotating thruster cone and stationary thruster exhibited evidence of multiple overload fractures. The aircraft directional control system, forward and center thruster control cables had stainless steel safety wires installed. Continuity of both vertical stabilizers and the rotating thruster was confirmed. The three thruster control cables exhibited evidence of fire and overstress damage.

Examination of the airframe and flight control assembly revealed no evidence of a precrash mechanical failure or malfunction before the main rotor blades collided with the tail boom assembly. Continuity of the flight control system was confirmed for yaw and roll. Continuity of the pitch control could not be determined due to fire damage. (For additional information see Boeing Accident Case File, an attachment to this report.)

The engine assembly was removed and transported to the engine manufacture for further analysis. Examination of the engine assembly was conducted at Rolls-Royce Allison, Indianapolis, Indiana, on April 4, 2000. The Rolls-Royce Allison report concluded: (For additional information see Rolls-Royce Accident Investigation Report attached as an attachment to this report.)

* No pre-accident discrepancies were noted on the engine. * Engine continuity, N1 and N2 was established. * Examination of the engine during disassembly revealed that it had ingested

debris, post crash, which migrated through the turbine and was also found deposited on the 1st stage nozzle. * Heavy rubbing signatures were present on the blade tracks of the compressor impeller and the 2nd stage turbine wheel, indicative of external lateral impact loads imparted to the engine while operating. * All damage to the engine was deemed the result of external impact forces incurred during the crash sequence.

MEDICAL AND PATHOLOGICAL INFORMATION

Postmortem examination of the pilot was conducted by Dr. Valerie J. Rao, Associate Medical Examiner, The Miami Dade County Medical Examiner Department, Miami, Florida, on March 4, 2000. The cause of death was helicopter crash. Postmortem toxicology of specimens from the pilot were performed by the Miami-Dade County Medical Examiner Department and the Forensic Toxicology Research Section, Federal Aviation Administration, Oklahoma City, Oklahoma. Carbon monoxide and cyanide testing was not performed, and no ethanol was detected. Benzoylcegonne, 0.14 (ug/ml, ug/g) an inactive cocaine metabolite was detected in the brain, and 0.209 (ug/ml, ug/g) was detected in the liver. No cocaine was present, and it could not be determined if the pilot was impaired at the time of the accident.

Postmortem examination of the passenger was conducted by Dr. Valerie J. Rao, Associate Medical Examiner, The Miami Dade County Medical Examiner Department, Miami, Florida, on March 4, 2000. The cause of death was helicopter crash.

TEST AND RESEARCH

Review of MD 600N Rotorcraft Flight Manual Section II Limitations, 2-1. Flight Restrictions states, "Aerobatic Flight is not approved." Title 14 CFR Part 91.301 states, "For the purposes of this section, aerobatic flight means an intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight."

ADDITIONAL INFORMATION

The wreckage of N611BC was released to Mr. Charles G. Maynard, Sample International Aviation, Inc., Ormond Beach, Florida, on March 5, 2000. The pilot's logbook was released to Mr. Paul H. Barth, Helicopter Aviation Services and Leasing Inc., Miami, Florida, on March 13, 2000. The engine assembly was released to Mr. Charles G. Maynard on May 2, 2000.

Pilot Information

Certificate:	Airline Transport	Age:	42, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane; Instrument Helicopter	Toxicology Performed:	Yes
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	05/21/1999
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	6506 hours (Total, all aircraft), 526 hours (Total, this make and model), 5900 hours (Pilot In Command, all aircraft), 90 hours (Last 90 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	McDonnell Douglas	Registration:	N611BC
Model/Series:	HU-600N HU-600N	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	RN008
Landing Gear Type:	Skid	Seats:	6
Date/Type of Last Inspection:	02/02/2000, 100 Hour	Certified Max Gross Wt.:	3850 lbs
Time Since Last Inspection:	44 Hours	Engines:	1 Turbo Shaft
Airframe Total Time:	964 Hours	Engine Manufacturer:	Allison
ELT:		Engine Model/Series:	250-C47M
Registered Owner:	GENERAL ELECTRIC CAPITAL CORP	Rated Power:	600 hp
Operator:	WTVJ NBC 6	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	TMB, 10 ft msl	Distance from Accident Site:	4 Nautical Miles
Observation Time:	1450 EST	Direction from Accident Site:	270°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 3500 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	290°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	29° C / 6° C
Precipitation and Obscuration:			
Departure Point:	(TMB)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1503 EST	Type of Airspace:	Class E

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	On-Ground
Total Injuries:	2 Fatal	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	CARROL A SMITH
Additional Participating Persons:	SUZANNE M MEJIA; MIAMI, FL WARREN W SIZETZINGER; INDIANAPOLIS, IN JONATHAN D KURTZ; MESA, AZ
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinquiry@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .