		NTSB ID: ATL00FA069		Aircraft Registration Number: N911AM	
		Occurrence Date: 07/24/2000		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place SUMNER	State GA	Zip Code 31789	Local Time 0230	Time Zone EDT	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Eurocopter		Model/Series AS350B		Type of Aircraft Helicopter	
Sightseeing Flight: No			Air Medical Transport Flight: Medical Emergency		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>HISTORY OF FLIGHT</p> <p>On July 24, 2000, about 0230 eastern daylight time, a Eurocopter AS350B, N911AM, registered to and operated by Critical Care Medflight, was destroyed when it collided with trees and the ground during cruise flight 2 miles east of Sumner, Georgia. The commercial pilot, one flight nurse and one flight paramedic were fatally injured. Night visual meteorological conditions prevailed, and a company visual flight rules flight plan was filed for the repositioning flight being conducted under Title 14 CFR Part 91. The flight originated from Savannah, Georgia, at 0100, with an intended destination of Sylvester, Georgia.</p> <p>According to the operator, the purpose of the air medical flight operating as LifeFlight 3 was to transport a patient from Coffee County Hospital in Douglas, Georgia, to St. Joseph's Hospital in Savannah, Georgia. After dropping off the patient, the flight was returning to the Worth County Baptist Hospital in Sylvester. At approximately 0227, the pilot contacted the LifeFlight dispatcher and reported a Global Position System (GPS) location 7 miles west/northwest of Tifton, Georgia. No further communication was received from the pilot.</p> <p>Witnesses in the sparsely populated local area stated that at about 0230 they heard the helicopter fly over their homes. They said that it was a dark night, the sky was clear of clouds and that the helicopter was low, maybe 400 to 500 feet above the ground. One witness stated that he watched the helicopter fly until out of site then heard a "pop sound" he said it sounded unusual and was not very loud. He woke the next morning and found out about the accident and reported to the local police what he had observed.</p> <p>The flight failed to arrive at its final destination of Sylvester, Georgia. A search was initiated, and the helicopter was located at 0850, 2 miles east of Sumner, Georgia, by a pilot over flying the area. The helicopter collided with trees and came to rest in a swampy, wooded area adjacent to a cotton field.</p> <p>PERSONNEL INFORMATION</p> <p>The pilot held a commercial pilot certificate for helicopters and in single engine land airplanes, with airplane and helicopter instrument ratings. He also held a flight instructor certificate in helicopters, and an advanced instrument ground instructor certificate. In addition, he possessed a second-class airman medical certificate, dated July 23, 1999, with no waivers or limitations.</p> <p>According to company records, Critical Care Medflight hired the pilot on May 11, 2000. The pilot possessed a total of 2,500 hours, 2,280 of which were in helicopters. He had flown 40 hours in the previous 90 days, and 3 hours in the previous 24 hours. His last FAR 61.56 flight review was accomplished on May 5, 2000, in a Eurocopter AS350B.</p>					
FACTUAL REPORT - AVIATION					

National Transportation Safety Board

FACTUAL REPORT**AVIATION**

NTSB ID: ATL00FA069

Occurrence Date: 07/24/2000

Occurrence Type: Accident

Narrative (Continued)**AIRCRAFT INFORMATION**

The 1980 Eurocopter, AS350B, N911AM, was configured as a medical flight for one pilot and three passengers. The single engine helicopter was owned and operated by C.C. Medflight, Incorporated in Wilmington, Delaware, and operated in Lawrenceville, Georgia. A review of the helicopters logbooks found that on June 7, 2000, the helicopter received an annual and 100 hour inspection with no major discrepancies noted. At the time of the accident the helicopter had accumulated 25 hours of flight time since that inspection.

METEOROLOGICAL INFORMATION

At 0230, weather conditions in Albany, Georgia, located 27 miles to the west, were reported as scattered clouds at 7,500 feet, visibility 7 statute miles, temperature 23 degrees C. (73 degrees F.), dew point 22 degrees C. (72 degrees F.), winds from 150 degrees at 4 knots, and an altimeter setting of 29.93 Hg.

COMMUNICATIONS

At approximately 0227, the pilot contacted the Life-Flight dispatcher and reported a Global Position System (GPS) location 7 miles west/northwest of Tifton, Georgia. No further communication was received from the pilot.

WRECKAGE AND IMPACT INFORMATION

The helicopter impacted the ground on a 330-degree heading. The cabin had separated toward the right side with the right hand forward cross tube mount sliding approximately half the distance from its normal position toward the skid. The forward ends of both skids were buried in the ground with the trailing ends of the skids protruding upward at approximately a 70-degree angle. Impact and the subsequent post-crash fire destroyed the cabin structure. The cockpit and right side of the cabin were thrown to the right of the impact site on a 040-degree heading over a distance of about 150 feet. Flight instruments were found separated from the instrument panel and destroyed. The pilots collective control was found and the stainless steel slide for the friction lock showed that the collective stick was at the maximum pitch setting.

The engine, rotor head and mast, and main gearbox were located in a four-foot deep hole in the approximate correct orientation consistent to the nose of the aircraft as defined by the location of the skids. The tailboom was impaled by the left aft skid spring steel extension. The aft end of the tailboom, vertical fin, tail rotor gearbox, and right horizontal stabilizer were broken away from the tailboom, but located in the general vicinity of the above described wreckage.

Examination of the main rotor shaft, head, and cyclic system remained virtually intact. The swashplate bearing appeared to be functional and could be rotated by hand. The anti-vibrator assembly was ejected from the shaft but remained approximately 10 to 12 inches forward of the rotor head; the attachment bolts were sheared and remained in the threads. The anti-vibrator assembly upper cowlings were dented consistent with impact with a solid object. All main rotor blades were intact except that one blade was broken approximately half in length out in flap; there were no impact marks in the leading edge. One main rotor blade appeared to have a leading edge impact at the 1000-mm zone, but with low inertia or with something soft, as the blade remained intact except for trailing edge damage. All three starflex arms were broken in a 45-degree angle from inboard leading edge to outboard trailing edge. The frequency adapters, spherical thrust bearings, and sleeves were all intact except the yellow sleeves were stretched consistent with the impact at the frequency adapter. One pitch change link remained intact, but severely bent; the other two were broken and melted with the rod ends remaining at the attachment points in the blade horns and swashplate. Wood splinters were found in the anti-vibrator assembly and the yellow frequency

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Narrative (Continued)

adapter area. The tail rotor gearbox and rotor assembly appeared to be intact. Continuity was assured through the tail gearbox and rotor by rotating the gearbox by hand. The tail rotor pitch links remained intact with no apparent damage to the bearings or links. The tail rotor spider bearing was rotated by hand and appeared to function correctly. The tail rotor driveshaft evidenced no indication of rotation during the crash sequence. No pre-existing impact damage was identified during the examination.

Examination of the engine found it deformed by impact with some parts missing either by the impact or post-crash fire. Missing parts included the bleed valve and start drain valve. The fuel control/governor was only attached by the fuel and airlines. The front case was broken with some of the gearing exposed. The input shaft was broken approximately 2/3 of the distance from the engine toward the main gearbox. After cutting away the case, the aft flex coupling for the input shaft was found to be in good condition. The inlet for the compressor was deformed with the compressor blades bent in two different directions. The tail pipe was severely deformed and was cut away to gain access. The power output coupling had scribe marks installed during assembly of the engine as a reference for over-torque/impact evidence. The marks were found to be misaligned by approximately 1/4 of an inch forcing the gear tighter. The boss around the drive splines was deformed as well. The small coupling area of the power turbine wheel that could be seen through the areas of the tailpipe did not reveal any damage. Very little rotation marks were evident around the turbine wheel.

The engine was crated and sent to Turbomeca Engine Corporation in Grand Prairie, Texas, for further examination. On August 29, 2000, the engine was disassembled and inspected. Present during the examination were representatives from the NTSB, FAA, Critical Care Med-flight, Turbomeca and American Eurocopter. Examination and disassemble of the heavily damaged engine found circular rubs on most of the engines rotating parts, and the twisted power shaft, the fractured/opened muff-coupling and the rotation of the drive pinion into the tightened direction.

MEDICAL AND PATHOLOGICAL INFORMATION

The Georgia Bureau of Investigation Division of Forensic Sciences, in Decatur, Georgia, conducted a post-mortem examination of the pilot. The FAA Toxicology Research Laboratory, in Oklahoma City, Oklahoma, conducted a toxicology examination of the pilot. The examination revealed the following results; Carbon Monoxide Not Performed, Cyanide not performed, Ethanol >>19 Detected in Vitreous, Non-detected in the muscle, >>21 detected in kidney, >>1 N-Propanol detected in Vitreous, >>2 N-Propanol detected in kidney, and >>8 Acetaldehyde detected in kidney. Additionally, the FAA Toxicology Laboratory reported that some of the samples had Putrefaction.

In its investigations, the NTSB routinely requests complete toxicology evaluation on all transportation operators who are fatally injured. In around 10% of such evaluations, ethanol is detected in the blood and/or tissues. In many of these cases, particularly when significant decomposition has taken place, the ethanol present is the result of production of alcohol by microorganisms in the tissues after death, and does not represent the ingestion of alcohol. From the time of the accident until the time of the autopsy approximately 36 hours had passed, allowing sufficient time for microorganisms to enter the tissue.

TEST AND RESEARCH

Advisory Circular 60-4 states in part, "The attitude of an aircraft is generally determined by reference to the natural horizon or other visual references with the surface. If neither horizon or surface reference exist, the attitude of an aircraft must be determined by artificial means from the flight instruments. Sight supported by other senses, allow the pilot to maintain orientation. However during periods of low visibility, the supporting senses sometimes conflict with what is seen. When this happens, a pilot is particularly vulnerable to disorientation. The degree of orientation may vary considerably with individual pilots. Spatial disorientation to a pilot means

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Narrative (Continued)


simply the inability to tell which way is "up..." Surface references and the natural horizon may at times become obscured, although visibility may be above flight rule minimums. Lack of natural horizon or such reference is common on overwater flights, at night, and specially at night in extremely sparsely populated areas, or in low visibility conditions... The disoriented pilot may place the aircraft in a dangerous attitude... Therefore, the use of flight instruments is essential to maintain proper attitude when encountering any of the elements which may result in spatial disorientation."


ADDITIONAL INFORMATION

In addition to the Federal Aviation Administration, parties to the investigation were American Eurocopter and Turbomeca engines.

The helicopter was released to Phil Powell, Atlanta, Georgia, representing the owners insurance company.

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		Occurrence Type: Accident			
Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Type Instrument Approach:					
VFR Approach/Landing:					
Aircraft Information					
Aircraft Manufacturer Eurocopter		Model/Series AS350B		Serial Number 1319	
Airworthiness Certificate(s): Normal					
Landing Gear Type: Skid					
Homebuilt Aircraft? No	Number of Seats: 4	Certified Max Gross Wt.	4300 LBS	Number of Engines: 1	
Engine Type: Turbo Shaft	Engine Manufacturer: Turbomeca	Model/Series: ARRIEL 1B	Rated Power: 517 HP		
- Aircraft Inspection Information					
Type of Last Inspection 100 Hour	Date of Last Inspection 06/2000	Time Since Last Inspection 25 Hours	Airframe Total Time 4814 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? Yes	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner C.C. MEDFLIGHT, INC.		Street Address 1209 ORANGE ST.			
		City WILMINGTON	State DE	Zip Code 19801	
Operator of Aircraft CRITICAL CARE MEDFLIGHT, INC.		Street Address P.O. BOX 245			
		City LAWRENCEVILLE	State GA	Zip Code 30046	
Operator Does Business As: LIFEFLIGHT			Operator Designator Code: MFGA		
- Type of U.S. Certificate(s) Held:					
Air Carrier Operating Certificate(s): On-demand Air Taxi					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Positioning					
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First Pilot Information																																																																																				
Name		City		State	Date of Birth	Age																																																																														
On File		On File		On File	On File	30																																																																														
Sex: M	Seat Occupied: Right	Principal Profession: Civilian Pilot		Certificate Number: On File																																																																																
Certificate(s): Flight Instructor; Commercial																																																																																				
Airplane Rating(s): Single-engine Land																																																																																				
Rotorcraft/Glider/LTA: Helicopter																																																																																				
Instrument Rating(s): Airplane; Helicopter																																																																																				
Instructor Rating(s): Helicopter																																																																																				
Type Rating/Endorsement for Accident/Incident Aircraft? Yes				Current Biennial Flight Review?																																																																																
Medical Cert.: Class 2		Medical Cert. Status: Valid Medical--no waivers/lim.		Date of Last Medical Exam: 07/1999																																																																																
<table border="1"> <tr> <th rowspan="2">- Flight Time Matrix</th> <th rowspan="2">All A/C</th> <th rowspan="2">This Make and Model</th> <th rowspan="2">Airplane Single Engine</th> <th rowspan="2">Airplane Multi-Engine</th> <th rowspan="2">Night</th> <th colspan="2">Instrument</th> <th rowspan="2">Rotorcraft</th> <th rowspan="2">Glider</th> <th rowspan="2">Lighter Than Air</th> </tr> <tr> <th>Actual</th> <th>Simulated</th> </tr> <tr> <td>Total Time</td> <td>2500</td> <td></td> <td>220</td> <td></td> <td></td> <td></td> <td></td> <td>2280</td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command(PIC)</td> <td>1800</td> <td></td> <td>190</td> <td></td> <td></td> <td></td> <td></td> <td>1610</td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td>40</td> <td>40</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>40</td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td>12</td> <td>12</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>12</td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td>3</td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> </table>						- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air	Actual	Simulated	Total Time	2500		220					2280			Pilot In Command(PIC)	1800		190					1610			Instructor											Last 90 Days	40	40						40			Last 30 Days	12	12						12			Last 24 Hours	3	3						3		
- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night							Instrument					Rotorcraft	Glider	Lighter Than Air																																																																	
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Seatbelt Used? Yes		Shoulder Harness Used? Yes		Toxicology Performed? Yes		Second Pilot? No																																																																														
Flight Plan/Itinerary																																																																																				
Type of Flight Plan Filed: Company VFR																																																																																				
Departure Point		State	Airport Identifier	Departure Time	Time Zone																																																																															
SAVANNAH		GA	SAV	0100	EDT																																																																															
Destination		State	Airport Identifier																																																																																	
SYLVESTER		GA	SYV																																																																																	
Type of Clearance: None																																																																																				
Type of Airspace: Class G																																																																																				
Weather Information																																																																																				
Source of Briefing: Flight Service Station; National Weather Service																																																																																				
Method of Briefing:																																																																																				

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: ATL00FA069			
		Occurrence Date: 07/24/2000			
		Occurrence Type: Accident			


Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
ABY	0230	EDT	197 Ft. MSL	27 NM	280 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			7500 Ft. AGL	Condition of Light: Night/Dark	
Lowest Ceiling: None		0 Ft. AGL	Visibility: 7 SM	Altimeter: 29.00	"Hg
Temperature: 73 °C	Dew Point: 72 °C	Wind Direction: 150		Density Altitude: 1393	Ft.
Wind Speed: 4	Gusts:	Weather Conditions at Accident Site: Visual Conditions			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	Intensity of Precipitation: Unknown			
Restrictions to Visibility: None					
Type of Precipitation: None					

Accident Information					
Aircraft Damage: Destroyed		Aircraft Fire: Ground		Aircraft Explosion: None	
Classification: U.S. Registered/U.S. Soil					

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot	1				1
Second Pilot					
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew	2				2
Passengers					
- TOTAL ABOARD -	3				3
Other Ground	0	0	0		0
- GRAND TOTAL -	3	0	0		3

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	Occurrence Type: Accident	
Administrative Information		
Investigator-In-Charge (IIC) BUTCH WILSON		
Additional Persons Participating in This Accident/Incident Investigation: RAY BELCHER ATLANTA FSDO ATLANTA, GA 30337		
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