		NTSB ID: MIA99FA158		Aircraft Registration Number: N144CM		
		Occurrence Date: 05/20/1999		Most Critical Injury: Fatal		
		Occurrence Type: Accident		Investigated By: NTSB		
Location/Time						
Nearest City/Place INTERCESSION		State FL	Zip Code 33848	Local Time 1300	Time Zone EDT	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:				
Aircraft Information Summary						
Aircraft Manufacturer Hughes		Model/Series 369E /369E		Type of Aircraft Helicopter		
Revenue Sightseeing Flight: No			Air Medical Transport Flight: No			
Narrative						
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>*** Note: NTSB investigators either traveled in support of this investigation or conducted a significant amount of investigative work without any travel, and used data obtained from various sources to prepare this aircraft accident report. ***</p> <p>HISTORY OF FLIGHT</p> <p>On May 20, 1999, about 1300 eastern daylight time, a Hughes 369E, N144CM, registered to Vortex Helicopter LLC, operated by Air 2, as a 14 CFR Part 91 external load flight, crashed in the vicinity of Florida Power Corporation, Intercession City sub station, Intercession City, Florida. Visual meteorological conditions prevailed and no flight plan was filed. The helicopter sustained substantial damage. The commercial pilot sustained serious injuries, and a lineman located on a cargo platform on the left side of the helicopter was fatally injured. The flight originated from a landing zone (LZ) located at the Intercession City substation about 1 hour 15 minutes before the accident.</p> <p>The pilot stated he had been conducting operations in and out of the LZ with another helicopter, and had not refueled three times before the accident flight. Each time he returned to the LZ, he had about 100 pounds of fuel remaining, and would add about 220 pounds of fuel to the helicopter. He could not recall the exact time that he departed on the third flight. He returned to the work site area and was working south of the accident site. The other helicopter (N58377) joined up with him before they relocated to structure No. WIC 134. He approached the structure on a heading of about 140 degrees magnetic, came to an out of ground effect hover at about 75 feet agl, and moved in next to the stringing block. N58377 remained off his left side and was photographing there operation. Right before the emergency, he pulled off the structure so the photographer on N58377 could change film in his camera. He hovered about 2 to 3 minutes, and checked his fuel before he moved back in next to the stringing block at WIC 134. He had been hovering about 10 minutes moving around the structure, when the helicopter started to sink. He applied right antitorque pedal, and the engine noise decreased. He moved the cyclic to the right, increased collective pitch to arrest the rate of descent, and the engine out audio activated. He had insufficient time to look at the engine or rotor rpm. As soon as he knew he was clear of the wires, he lowered the collective pitch to try and gain rotor rpm, and applied forward cyclic in an attempt to clear a tree to his front. He realized he would be unable to clear the trees, and applied aft cyclic to try to make a vertical descent. The helicopter collided with the trees and the ground in a nose low left skid low attitude.</p> <p>The photographer located in N58377 stated that N144CM departed the LZ at about 1150, after refueling. N58377 completed refueling operations, departed the LZ at about 1205, and joined up with N144CM photographing the installation of the fiber optic cable. N144CM moved away from WIC 134 while he changed film, and then moved back in and continued with the job. At about 1300, he observed N144CM move abruptly to the right, and the right skid pitched down. N144CM cleared the wires descending, moved forward in a left skid low, and slight nose-down attitude. The main rotor blades were observed to be coning up and were moving very slowly. The helicopter appeared to descend vertically, and collided with the ground in a nose and left skid low attitude. The pilot of N58377 verified the photographer's observations. The pilot stated they landed next to the crash site to assist.</p>						
FACTUAL REPORT - AVIATION						

National Transportation Safety Board

## FACTUAL REPORT

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## Narrative (Continued)

They determined that additional personnel were required. He returned to the LZ, reported the accident, and returned to the crash site, and continued assisted until emergency medical personnel arrived.

## PERSONNEL INFORMATION

Information pertaining to the pilot is contained in NTSB Form 6120.19, Pilot Information, and on page 3 of this report.

## AIRCRAFT INFORMATION

Review of aircraft records revealed that Airworthiness Directive 93-18-05, Fuel Vent Line had been recorded as complied with on December 20, 1993. The fuel sending unit was removed and replaced on March 14, 1999. The write up states, "Removed fuel sending unit and installed a factory new fuel sending unit. As per MOHC CSP-HMI-II. Function tested fuel system and set fuel low light. Test ran and leak checked: No leaks detected. Rotorcraft approved for return to service-End" For additional information pertaining to aircraft information is contained on page 2 of this report.

## METEOROLOGICAL INFORMATION


Visual meteorological conditions prevailed at the time of the accident. For additional weather information see page 4 of this report.

## WRECKAGE AND IMPACT INFORMATION

The wreckage of N144CM was located about 1 mile west of the Intercession City Sub Station, Florida Power Corporation, adjacent to a power line structure identified as WIC 134 located in the vicinity of Intercession City, Florida.

Examination of the crash site revealed the helicopter collided with trees and terrain in slight nose down, left skid low attitude, on a heading of 145 degrees magnetic. The lower left and right canopy windshield was broken. The left lower forward fuselage was compressed upward from FS 44.65 to FS 68.00. The pilot seat box was compressed downward. The pilots antitorque bulkhead support at FS 44.65 is buckled inward toward the center console. The center console and instrument panel was buckled on the left and right side at the cabin floor. The right lower forward fuselage was compressed upward at about FS 61. The right hand forward damper upper attachment protruded through the forward passenger seat box. Minor upward compression damage was present on the lower fuselage from FS 70.00 extending rearward to FS 85.00. Minor buckling was present on the right side of the fuselage at FS 165.00, and about WL 50.00. A main rotor blade strike was present on the aft end of the engine air inlet fairing. The left skid forward and rear strut separated at the step attachment. The left hand forward section of the skid separated at the forward end of the foot, and the left aft rear brace is buckled. The left rear damper was not collapsed. The right skid forward section separated at the forward end of the foot. The forward strut was separated from the strut assembly, and the rear damper was not collapsed. The tailboom was buckled at the forward attach point from cant station 197.78 to about cant station 211.00, and there was no evidence of a main rotor strike. The horizontal stabilizer was buckled about 12 inches to the left of the forward and aft attachment fitting on the leading edge. The vertical stabilizer sustained compression damage on the lower leading edge at cant station 281.12 extending upward about 10 inches.

Examination of the main rotor system and the tail rotor system revealed no evidence to indicate a precrash mechanical failure or malfunction. The main rotor head, pitch change links, lead lag links, pitch housings, striker plates, rollers, droop stop plungers, strap packs, lead lag dampers, blade pins, lead lag bolts, feathering bearings, droop stop ring, drive scissors, and drive link exhibited no visible signs of damage. The white, blue, green and red main rotor blades remained attached to the main rotor system and sustained impact damage. Tree bark was present along the leading edge of all rotor blades. The underside of the green rotor blade exhibited scarring from impact with the top aft end of the engine air inlet fairing. No underside scarring was present on the other main rotor blades. The yellow main rotor blade separated at the root fitting. The main rotor blade was bent upward at about a 75 degree angle at blade station 111. Both tail rotor blades sustained tree strike damage.

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## Narrative (Continued)

Examination of the airframe, and flight control assembly 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, impeller assembly, and chip detectors revealed no evidence of a preimpact failure or malfunction. The oil cooler blower belt was intact, and there was no damage to the oil cooler blower assembly.

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 main fuel tank was not ruptured. No fuel was present in the fuel tank. Browning of vegetation indicative of fuel leakage was not present or near the crash site. Fuel was 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. Sixteen ounces of fuel was recovered from the main fuel line from the firewall to the engine, and from the fuel tank sump drain valve. A fuel system vacuum check was performed without any loss of vacuum. Battery power was applied to the helicopter, and the fuel level low caution light illuminated.

The engine was removed and transported to Rolls-Royce Allison located in Indianapolis, Indiana. The engine was placed in a test stand in the presence of the FAA, and an engine run was conducted in accordance with new engine acceptance specifications. The engine started, and temperatures and pressures were normal. The engine attained takeoff power, and all cruise power point specifications. Deceleration and acceleration maneuvers were normal, and no compressor stalls were noted. For additional information see Allison Engine Company Data Reduction Report Number 28577.


## MEDICAL AND PATHOLOGICAL INFORMATION


The pilot was diagnosed as having a compression fracture on a vertebra. The pilot was treated and released from the emergency room. The hospital did not take blood samples for alcohol and drug analysis.

Postmortem examination of the lineman, was conducted by Dr. William R. Anderson, Deputy Chief Medical Examiner, District 9, Medical Examiner's Office, Orlando, Florida, on May 21, 1999. The cause of death was blunt force trauma.

## ADDITIONAL INFORMATION

The helicopter was released to Mr. William Blankinship, Air Claims Investigator, Sample International Inc., on behalf of the registered owner on May 22, 1999. The engine was released to Aviation Consultant Services, Wimauma, Florida, on behalf of the registered owner on June 24, 1999.

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<b>Landing Facility/Approach Information</b>					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Approach/Arrival Flown: NONE					
VFR Approach/Landing: Forced Landing					
<b>Aircraft Information</b>					
Aircraft Manufacturer Hughes		Model/Series 369E /369E		Serial Number 0178E	
Airworthiness Certificate(s): Normal					
Landing Gear Type: High Skid					
Amateur Built Acft? No	Number of Seats: 4	Certified Max Gross Wt. 3000 LBS	Number of Engines: 1		
Engine Type: Turbo Shaft	Engine Manufacturer: Allison	Model/Series: 250-C20B	Rated Power: 420 HP		
- Aircraft Inspection Information					
Type of Last Inspection 100 Hour	Date of Last Inspection 05/1999	Time Since Last Inspection 50 Hours	Airframe Total Time 13297 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?/Type Yes /	ELT Operated?	ELT Aided in Locating Accident Site?			
<b>Owner/Operator Information</b>					
Registered Aircraft Owner VORTEX HELICOPTERS, LLC		Street Address 500 WEST HARBOR DRIVE SUITE 13			
		City SAN DIEGO	State CA	Zip Code 92101	
Operator of Aircraft AIR 2		Street Address 12515 NORTH KENDALL			
		City MIAMI	State FL	Zip Code 33186	
Operator Does Business As:			Operator Designator Code:		
- Type of U.S. Certificate(s) Held: None					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Unknown					
FACTUAL REPORT - AVIATION					

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**First Pilot Information**

Name On File	City On File	State On File	Date of Birth On File	Age 44
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Sex: M	Seat Occupied: Left	Occupational Pilot? <input type="checkbox"/> Civilian Pilot <input type="checkbox"/>	Certificate Number: On File
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Certificate(s): Commercial

Airplane Rating(s): None

Rotorcraft/Glider/LTA: Helicopter

Instrument Rating(s): Helicopter

Instructor Rating(s): None

Current Biennial Flight Review?

Medical Cert.: Class 2	Medical Cert. Status: Valid Medical--no waivers/lim.	Date of Last Medical Exam: 09/1997
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- 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	7217	2271			1309	32	72	7217		
Pilot In Command(PIC)	6758	2234			1216	16	36	6758		
Instructor										
Instruction Received										
Last 90 Days	53	2			4			53		
Last 30 Days	2	2						2		
Last 24 Hours	2	2						2		

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed? No	Second Pilot? No
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**Flight Plan/Itinerary**

Type of Flight Plan Filed: None

Departure Point Same as Accident/Incident Location	State	Airport Identifier NONE	Departure Time 1145	Time Zone EDT
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Destination Local Flight	State	Airport Identifier	
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Type of Clearance: None

Type of Airspace: Class G

**Weather Information**

UAT/CA Source of Wx Information:  
No record of briefing

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<b>Weather Information</b>					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
MCO	1253	EDT	55 Ft. MSL	31 NM	30 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			25000 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: None		0 Ft. AGL	Visibility: 88 SM	Altimeter: 30.00 "Hg	
Temperature: 18 °C	Dew Point: °C	Weather Conditions at Accident Site: Visual Conditions			
Wind Direction:		Wind Speed: 4	Wind Gusts:		
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM				
Precip and/or Obscuration:					

<b>Accident Information</b>		
Aircraft Damage: Substantial	Aircraft Fire: None	Aircraft Explosion: None

- 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					
Passengers	1				1
- TOTAL ABOARD -	1	1			2
Other Ground	0	0	0		0
- GRAND TOTAL -	1	1	0		2

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**FACTUAL REPORT**

**AVIATION**



NTSB ID: MIA99FA158

Occurrence Date: 05/20/1999

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

CARROL A. SMITH

Additional Persons Participating in This Accident/Incident Investigation:

WILLIAM H EDWARDS  
ORLANDO, FL

ROBERT W PETTERSON  
ATLANTA, GA

WARREN W SEITZINGER  
INDIANAPOLIS, IN