
		NTSB ID: FTW96FA060		Aircraft Registration Number: N16089	
		Occurrence Date: 12/05/1995		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place THIBODAUX	State LA	Zip Code 70301	Local Time 1201	Time Zone CST	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:			
Aircraft Information Summary					
Aircraft Manufacturer McDonnell Douglas		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 December 5, 1995, at 1201 central standard time, a McDonnell Douglas 369E, N16089, collided with power lines and a pole while hovering out of ground (OGE) effect near Thibodaux, Louisiana. The commercial pilot received minor injuries and the other crewmember (airborne workman) sustained fatal injuries. Haverfield Corporation of Miami, Florida, was operating the helicopter under a Title 14 CFR Part 133 Operating Certificate at the time of the accident. The flight had been working on the area power line since about 0730. Visual meteorological conditions prevailed for the local flight and a company (VFR) flight plan was filed.</p> <p>During a personal interview, conducted by the investigator-in-charge, the pilot reported that the helicopter staging area was located about one mile from the power line and, after refueling, the flight had been airborne about 45 minutes before the accident. The helicopter was hovering stationary and parallel to the power lines, about 55 feet AGL, in an east southeasterly direction with winds from the southwest (200 to 210 degrees) at 5 knots or higher (10 knots). The crew member, held by a safety harness, was working from the left side of the platform and was installing a shield wire (overhead ground wire) in roller blocks. While hovering the helicopter with the left side of the work platform about 4 inches from the shield wire, the "cyclic suddenly moved to the left and maybe slightly forward." The aircraft "immediately started moving to the left into the pole and line." The pilot stated that he was "trying to stop the cyclic" and move it to the right; however, "cyclic movement to the right had a restriction" and the "helicopter struck the pole and/or the shield wire, pivoted to the left and up, over the shield wire." The helicopter "began to spin," then impacted the ground on the north side of the lines, and came to rest inverted. A post impact fire erupted. The pilot, who was wearing a nomex flight suit and a helmet, escaped the fire. The pilot and witnesses attempted to remove the crewmember trapped under the platform; however, the heat from the spilled fuel fire prevented the recovery.</p> <p>The pilot further stated that he had flown this aircraft for several months and had "never had a problem with the cyclic trim or flight controls." He had been working throughout the morning "without a problem" and did not recall any "unusual vibration, feedback, or aircraft noise prior to the cyclic movement." He was aware of the control input during a non commanded trim and stated that the cyclic movement during the impact sequence was "not the trim."</p> <p>Witnesses and a local firefighter reported observing the helicopter hovering stationary and parallel to the power lines with the helicopter facing to the east. They reported the winds were from the south southwest at 15 knots with "occasional gust." One witness who observed the helicopter hovering near the electrical post, reported that "the helicopter sound changed and I saw the helicopter's tail rise, [and] the nose roll to the left."</p>					
FACTUAL REPORT - AVIATION					
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Narrative (Continued)

PERSONNEL INFORMATION:

Company personnel reported that the pilot had worked at the Thibodaux site since September 1995. Haverfield Corporation contracted to Entergy Services, Inc., of New Orleans, Louisiana, for the helicopter crew to assist a ground contractor in replacing existing Copperweld shield wire with Alumoweld. The work involved placing the old shield wires in rollers, repairing any broken strands, and covering existing splices on the wire to facilitate pulling in the new wire. Once the new wire was in place the helicopter crew would attach the new wire to the poles and remove the rollers.

Company records for the pilot indicated 3,912 military flight hours and a subsequent issuance of the FAA commercial pilot certificate with helicopter and instrument ratings. The pilot was issued a certificate of competency on January 3, 1995, by Haverfield Corporation for Class A (work platform and airborne workman), B, and C, external load operations. Company daily operation forms from November 22, 1995, through December 5, 1995, indicated a pilot duty day of 10 to 11.5 hours (6 to 9 hours flight time). On December 5, 1995, the pilot had accrued a duty time of 5 hours and 30 minutes prior to the accident.

AIRCRAFT INFORMATION:

The helicopter was maintained in accordance with the manufacturer's continuous inspection program. All maintenance records since the last "C" phase check (July 12, 1995). There were no open discrepancies found in the maintenance records. On December 1, 1990, the cyclic control tube was installed. The cyclic trim switch (due to sticking) had been replaced on November 16, 1995. Company personnel reported that the helicopter was within the weight and balance limits (copy enclosed).

Federal Aviation Regulations Title 14 CFR Part 27.143 (copy enclosed) states the helicopter controllability and maneuverability certification requirements. FAR 27.143 (c) states that "a wind velocity of not less than 17 knots must be established in which the rotorcraft can be operated without loss of control on or near the ground."

A review of FAA and company records (enclosed) revealed that Haverfield Corporation and the helicopter were approved for external load operations in class A, B, and C load combinations. During this flight the helicopter operated under Class A rotorcraft-load combinations using the skid-mounted cargo rack and work platform (STC Approved) including the airborne workman.


WRECKAGE AND IMPACT INFORMATION:

Site terrain was a harvested sugarcane field and the helicopter came to rest on a measured magnetic heading of 105 degrees approximately 54 feet from the power line poles. Cabin and cockpit areas were destroyed by the fire; however, there was no evidence of an inflight fire. The horizontal stabilizer, gear box, and a portion of the tailboom came to rest at the base of the poles. Main rotor blades, except the blue blade, remained with the main wreckage. See the enclosed diagram for additional details.

Examination of the power line pole indicated a gouge in the pole. Red paint transfer and scrapes were found on the ground wires. Striations in width to the approximate diameter of the power line cables were found within the leading edge crushed areas of the tail rotor blades and along the vertical stabilizer.

The pitch change control rods and mixer links were attached at the swashplate. Main rotor blade pitch change links were bent or separated. Flight control continuity was confirmed at the swashplate assembly and the tailrotor gearbox. All parts of the main rotor blades were found and the main rotor (blue blade) was detached at the hub strap assembly.

The located portions of the tailrotor driveshaft indicated torsional overload. The tailboom portions exhibited downward bending.

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Narrative (Continued)

The main rotor (blue blade) lead lag straps, remains (not destroyed by fire) of the longitudinal/lateral trim motor system, and the control rod ends (found among the fire debris) were forwarded to the NTSB Materials Laboratory. On December 12, 1995, the FAA inspector removed the cyclic and collective control rod ends and the swashplate assembly (including the uniball). These components were forwarded to the NTSB Materials Laboratory.

An engine teardown was completed on December 7, 1995, at Houma, Louisiana, with NTSB oversight. The examination disclosed "rotational damage to the engine shafting" and "aluminum deposits on the turbine vanes" indicated that the "the engine was turning when it hit the ground."

There were no discrepancies found that would indicate that the "engine was not capable of producing power up to the time of impact."

MEDICAL AND PATHOLOGICAL INFORMATION:

Toxicology for the pilot was positive for 3.800 (ug/ml) acetaminophen detected in the blood. The pilot reported that at 1045 he "took 2 Ibuprofen tablets to prevent backache later in the day." FAA Regional Flight Surgeon, G. J. Salazar, M.D., stated that the acetaminophen "detected in blood, is insignificant."

TEST AND RESEARCH:


Metallurgical examination (report enclosed) of the swashplate assembly, rod ends, and trim system components disclosed "no evidence of preexisting cracking." All fractures "appeared typical of overstress separations or the components were severely fire damaged which destroyed the original fractures or configuration of the parts."


With the helicopter configured as per the accident and a 15 knot crosswind at an OGE hover, the manufacturer reported the following derived information: 3 inches of left anti torque pedal would have been available which equates to 39% of left pedal remaining; 3 inches of right cyclic would have been available, which equates to 25% of right cyclic remaining and 27% longitudinal cyclic; with mid cyclic equated to 50%. The data showed that a wind gust of "30 knots would be controllable." The weight and balance left lateral CG was -2.67 CG with a limit of -3.0 CG. During the OGE hover, the tailrotor plane was 38 inches from the nearest wire.

On August 1, 1996, at Material Analysis Laboratory, an NTSB investigator evaluated the trim actuators and derived the following trim data. Full trim travel is 3.5 inches. The lateral and longitudinal trim actuators had traveled 2.6 inches, respectively. The cyclic trim was set to the right and aft. A spring incorporated in the trim system precluded a determination of an exact cyclic trim setting.

ADDITIONAL INFORMATION:

The helicopter was released to the owner.

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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:					
Approach/Arrival Flown:					
VFR Approach/Landing:					
Aircraft Information					
Aircraft Manufacturer McDonnell Douglas		Model/Series 369E /369E		Serial Number 0443E	
Airworthiness Certificate(s): Restricted (Special); Normal					
Landing Gear Type: 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 11/1995	Time Since Last Inspection 37 Hours	Airframe Total Time 3622 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?/Type Yes /	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner HAVERFIELD CORPORATION		Street Address 200 S. BISCAYNE BLVD. STE 5400			
		City MIAMI	State FL	Zip Code 33131	
Operator of Aircraft HAVERFIELD CORPORATION		Street Address 200 S. BISCAYNE BLVD. STE 5400			
		City MIAMI	State FL	Zip Code 33131	
Operator Does Business As:			Operator Designator Code: HXFL		
- Type of U.S. Certificate(s) Held:					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate: Aircraft External Load		
Regulation Flight Conducted Under: Part 133: Rotorcraft Ext. Load					
Type of Flight Operation Conducted: Unknown;Unknown; Unknown; Unknown					
FACTUAL REPORT - AVIATION					

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: FTW96FA060
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	Occurrence Type: Accident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 41
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Sex: M	Seat Occupied: Right	Occupational Pilot? Unknown	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: 09/1995
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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	4685	773			1292	32	340	4685		
Pilot In Command(PIC)	4305	746			1242			4305		
Instructor										
Instruction Received										
Last 90 Days	300	300			4					
Last 30 Days	100	100			4					
Last 24 Hours	7	7								

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

Type of Flight Plan Filed: Company VFR

Departure Point Same as Accident/Incident Location	State	Airport Identifier	Departure Time 1115	Time Zone CST
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Destination Local Flight	State	Airport Identifier	
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Type of Clearance:

Type of Airspace: Class E

Weather Information

Source of Wx Information:


Flight Service Station

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Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
HUM	1246	CST	5 Ft. MSL	12 NM	175 Deg. Mag.
Sky/Lowest Cloud Condition: Unknown			0 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: Broken		2000 Ft. AGL		Visibility: 7 SM	Altimeter: 30.00 "Hg
Temperature: 28 °C	Dew Point: 21 °C	Weather Conditions at Accident Site: Visual Conditions			
Wind Direction: 210		Wind Speed: 10		Wind Gusts: 15	
Visibility (RVR): 0 Ft.		Visibility (RVV) 0 SM			
Precip and/or Obscuration:					

Accident Information		
Aircraft Damage: Destroyed	Aircraft Fire: Ground	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	1				1
Passengers					
- TOTAL ABOARD -	1		1		2
Other Ground	0	0	0		0
- GRAND TOTAL -	1	0	1		2

 National Transportation Safety Board FACTUAL REPORT AVIATION	NTSB ID: FTW96FA060	
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Administrative Information

Investigator-In-Charge (IIC)
JOYCE M. SMITH

Additional Persons Participating in This Accident/Incident Investigation:

BRIAN T CAPONE
BATON ROUGE, LA

JACK A MITTEER
MESA, AZ

SCOTT S SCHEURICH
INDIANAPOLIS, IN

MARK D CAMUS
MIAMI, FL