National Transportation Safety Board

FACTUAL REPORT AVIATION

NTSB ID: ERA10LA238	Aircraft Registration Number: N400MB
Occurrence Date: 04/21/2010	Most Critical Injury: Serious
Occurrence Type: Accident	Investigated By: NTSB

Location/Time

Nearest City/Place	State	Zip Code	Local Time	Time Zone	
Newfane	VT	05345	1101	EDT	

Airport Proximity: Off Airport/Airstrip	Distance From Landing Facility:

Aircraft Information Summary

Aircraft Manufacturer	Model/Series	Type of Aircraft
MCDONNELL DOUGLAS HELICOPTER	369E	Helicopter

Revenue Sightseeing Flight: No

Air Medical Transport Flight: No

Narrative

Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:

*** Note: NTSB investigators may not have traveled in support of this investigation and used data provided by various sources to prepare this aircraft accident report. ***

HISTORY OF FLIGHT

On April 21, 2010, about 1101 eastern daylight time, a McDonnell Douglas 369E, N400MB, registered to and operated by Air 2 LLC, impacted with a "pulling" rope and crashed near Newfane, Vermont. Visual meteorological conditions prevailed at the time and no flight plan was filed for the 14 Code of Federal Regulations (CFR) Part 133 rotorcraft external load flight. The helicopter sustained substantial damage. The commercial certificated pilot and one additional crewmember sustained serious injuries. The flight originated about 16 minutes earlier from a landing zone near the accident site.

According to the aircraft operator, installation of 54 miles of 345 kV transmission lines was being performed parallel to existing 345 kV transmission lines between Vernon and Cavendish, Vermont. The installation was being supported in part by personnel and equipment from Air 2 LLC, and Cianbro Corporation. The purpose of the accident flight was for the additional crewmember of Air 2 LLC to install a hold down block (X100 Block) onto a white colored "pulling" rope that was connected between transmission structures Nos. 141 and 163. The X100 Block was to be installed on the south side of structure 144, and is used to facilitate installation of transmission lines. The pulling rope connects to a solid diameter wire which is attached to the conductor wire intended to be installed.

The pilot stated that on the day of the accident earlier that morning, he checked the weather and visual flight rules (VFR) conditions were forecast to exist in the area. He performed a pre-flight on the helicopter, and did not find any discrepancies. He started the engine and departed from Springfield, Vermont, and flew to landing zone (LZ)-11, where he landed about 0715. While there he, "…Had daily tailboard meeting. Setup to hang fiber blocks, glass conductors, and blocks…." Later that morning he flew Air 2 LLC employees to structure No. 166 for installation of equipment. He was then requested to install additional equipment (hold-down) block at structure No. 144. He brought back two employees of Air 2 LLC to LZ-11 and dropped them off, then flew to structure No. 166, where he picked up the remaining Air 2 LLC employee and flew to structure No. 144. Cianbro Corporation personnel advised they needed the hold down on the North side of the pole. When he arrived at the structure, they contacted Cianbro Corporation personnel to confirm what side for placement of the equipment (South side), and then called personnel from Air 2 LLC located at LZ-7 asking if the pull had been stopped. Personnel from Air 2 LLC contacted personnel from Cianbro Corporation and was informed that the pull had been stopped and the helicopter was clear to proceed.

The project manager for Cianbro Corporation later reported that the all stop command was given on a citizens band (CB) radio transceiver approximately 3 to 5 minutes before the time of the accident, and several company employees confirmed that there was no pulling occurring at the time of the accident. One employee reported that at the time of the accident, there was no movement of the running board.

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Narrative (Continued)

The pilot further reported that personnel from Air 2 LLC relayed the response from Cianbro Corporation to him that the pull was stopped and he could precede. After confirming that the pull was stopped, he began to setup for his approach. He made notice of the trees on the right of way border and the weather, which consisted of clear skies and light and variable wind from 0 to 5 miles-per-hour with no gusts. He hovered high above the proposed work site to check aircraft power and determined there was adequate power, and confirmed the lineman in the helicopter was ready. He began his approach towards the structure and slowly hovered down and determined he had plenty of room to do the work. He positioned the helicopter approximately 50 ft. from the pole and started to slowly approach the rope to a position where it would be level with the floor of the helicopter. When the helicopter was close enough, the lineman installed the X100 Block (hold-down block).

The additional crewmember stated that he had installed the hold down block on the pulling rope, and was in the process of getting ready to drop the rope (attached to the hold down block) to the ground, when he saw a wave on the pulling rope coming from structure 144; this wave in the rope did not contact the helicopter. A short time later he saw a second wave approaching that was obviously going to contact the main rotors. He jumped into the aft cargo area and was completely inside the aft cargo compartment.

After completion of installation of the hold-down block, the pilot reported he slowly started backing away, making sure to keep the block and the floor of the helicopter level and even. When he was almost adequate distance away from the X100 Block to start climbing out of the work area, he felt something hit the helicopter. After the initial impact he felt 3 to 4 tugs and the helicopter began descending. He attempted to make an emergency landing. The next thing he remembers was being out of the helicopter walking around trying to figure out what had just happened. Following ground contact, the additional crewmember was ejected from the helicopter and landed on his entire left side of his body.

According to a nearby witness, he observed the helicopter hovering near structure No. 144, and then heard a pop followed by seeing the helicopter descending to the ground.

PERSONNEL INFORMATION

The pilot, age 56, holds private and commercial pilot certificates with rotorcraft helicopter and instrument helicopter ratings at the commercial level, and was last issued a second class medical certificate issued April 12, 2010, with a limitation to wear corrective lenses.

The Pilot/Operator Aircraft Accident/Incident Report submitted by the operator indicated the pilot’s total time was 16,420 hours, of which 15,180 hours were in rotorcraft type aircraft and 8,000 were in the accident make and model helicopter.

The pilot was admitted to a hospital on the day of the accident, and was released from the same hospital on April 26, 2010.

AIRCRAFT INFORMATION

The helicopter was manufactured in 1990 by McDonnell Douglas Helicopter Company as model 369E, and was designated serial number 0420E. It was powered by a Rolls-Royce Corporation (formerly Allison Engine Company) 250-C20R/2 turboshaft engine.

Review of the maintenance records revealed the helicopter was last inspected in accordance with a 100-Hour inspection on April 14, 2010; the helicopter total time at that time was 2,673.8 hours. The helicopter total time at the time of the accident was 2,688.2 hours.

METEOROLOGICAL INFORMATION

Narrative (Continued)

A surface observation weather report taken at Dillant-Hopkins Airport (EEN), Keene, New Hampshire, at 1055, or approximately 6 minutes before the accident indicates the wind was from 220 degrees at 5 knots, the visibility was 10 statute miles, and clear skies existed. The temperature and dew point were 17 and 3 degrees Celsius, respectively, and the altimeter setting was 29.82 inches of Mercury. The accident site was located approximately 17 nautical miles and 290 degrees from EEN.

COMMUNICATIONS

The communication for the all stop which was broadcast using a CB radio transceiver was not recorded.

WRECKAGE AND IMPACT INFORMATION

The project manager of the company that was installing the transmission lines (Cianbro Corporation) reported that when he arrived at the accident site, he noted that the "pulling" rope was broken between structure Nos. 143 and 144. The "pulling" rope found wrapped around the main rotor mast remained connected to structure No. 143, which was continuous to structure No. 141. The other end of the broken "pulling" rope was secured to structure No. 144, and was continuous to structure No. 163. He also stated that following the accident but before his arrival, ground personnel secured the broken "pulling" rope to structure No. 144.

Examination of the accident site by an FAA inspector revealed the helicopter came to rest on its left side nearly inverted. Two of the five main rotor blades were fractured but found in close proximity to the resting point of the helicopter. A white colored rope was wrapped around the main rotor static mast below the swash plate.

The operator reported that there was no helicopter preimpact mechanical failure or malfunction. The operator also reported that their postaccident examination of the accident site and surrounding area revealed “…evidence of structure movement North of the crash site at structure…” 157, as evidenced by numerous fresh tracks in the ground near the structure, fresh backfill on the left and right poles of structure No. 157, and fresh seeping creosote at ground level of one of the poles.

TESTS AND RESEARCH

According to personnel associated with the installation of the power-lines, re-plumbing of structure No. 157 was initiated and completed on April 19, 2010. The job involved the use of an excavation bucket, and other equipment.

Personnel of the operator reported that a rope inside the cabin area planned to be utilized by the additional crewmember was physically different than the "pulling" rope that was found wrapped around the main rotor mast.

Postaccident, the operator of the helicopter evaluated their procedures and implemented changes including:

1) AIR2 edited it's safe work procedures on helicopter use during wire stringing operations.

2) While the conductor or pulling line is being pulled or in motion by a power driven device, employees are not permitted directly beneath overhead operations or on the structure except as necessary to guide the stringing sock or board over or through the stringing sheave.

3) During all active wire stringing operations, the helicopter shall maintain a distance that will allow for obstruction clearance between the helicopter and the structures including all stringing equipment, ropes, hard lines and conductors.

4) In the event that it becomes necessary to use the helicopter to perform work or adjust equipment to facilitate the stringing operations, all wire movement, rope movement, and work within the segment must stop.

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The work with the helicopter can proceed only after the following has occurred:
a) Three-way communications must be established between the person in charge of the wire pulling operation and the pilot confirming that all work has stopped.
b) b) The pilot must perform an aerial reconnaissance of the entire segment to visually confirm the verbal statement of the person in charge that the pull is in an "ALL STOP", and that there are no other work activities or problems in that segment.
c) Once these tasks are completed, the pilot can proceed with the work activity. Upon completion of the work activity, the pilot will communicate to the person in charge when the helicopter is in the clear and it is safe to resume pulling.
Updated on Jul 18 2011 12:18PM

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Landing Facility/Approach Information

Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
		Ft. MSL	N/A		

Runway Surface Type:

Runway Surface Condition:

Approach/Arrival Flown: NONE

VFR Approach/Landing: None

Aircraft Information

Aircraft Manufacturer	Model/Series	Serial Number
MCDONNELL DOUGLAS HELICOPTER	369E	0420E

Airworthiness Certificate(s): Normal

Landing Gear Type: Skid

Amateur Built Acft?	Number of Seats:	Certified Max Gross Wt.	Number of Engines:
No	2	3000 LBS	1

Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:
Turbo Shaft	ALLISON	250-C20R/2	375 HP

- Aircraft Inspection Information

Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time
100 Hour	04/2010	14 Hours	2674 Hours

- Emergency Locator Transmitter (ELT) Information

ELT Installed?/Type	ELT Operated?	ELT Aided in Locating Accident Site?
Yes / Unknown	No	No

Owner/Operator Information

Registered Aircraft Owner	Street Address	City	State	Zip Code
Air 2 LLC	2345 York Road, Suite 102	Timonium	MD	21093-2261

Operator of Aircraft	Street Address	City	State	Zip Code
Air 2 LLC	2345 York Road, Suite 102	Timonium	MD	21093-2261

Operator Does Business As:

Operator Designator Code:

- 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: External Load

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First Pilot Information

Name	City	State	Date of Birth	Age
On File	On File	On File	On File	56

Sex: M | Seat Occupied: Left | Occupational Pilot? Yes | Certificate Number: On File

Certificate(s): Commercial; Private

Airplane Rating(s): Single-engine Land

Rotorcraft/Glider/LTA: Helicopter

Instrument Rating(s): Helicopter

Instructor Rating(s): None

Current Biennial Flight Review? 03/2009

Medical Cert.: Class 2 | Medical Cert. Status: With Waivers/Limitations | Date of Last Medical Exam: 04/2010

- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Mult-Engine	Night	Instrument Actual	Instrument Simulated	Rotorcraft	Glider	Lighter Than Air
Total Time	16420	8000	1240		300	150	200	15180		
Pilot In Command(PIC)	16420	8000	1240		300	150	200	15180		
Instructor										
Instruction Received										
Last 90 Days	200							200		
Last 30 Days	50							50		
Last 24 Hours	2	2						2		

Seatbelt Used? Yes | Shoulder Harness Used? Yes | Toxicology Performed? No | Second Pilot? No

Flight Plan/Itinerary

Type of Flight Plan Filed: None

Departure Point	State	Airport Identifier	Departure Time	Time Zone
Same as Accident/Incident Location			1045	EDT

Destination	State	Airport Identifier
Local Flight	VT	

Type of Clearance: None

Type of Airspace:

Weather Information

Pilot's Source of Wx Information:

Unknown

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Weather Information

WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
EEN	1055	EDT	488 Ft. MSL	17 NM	110 Deg. Mag.

Sky/Lowest Cloud Condition: Clear Ft. AGL

Condition of Light: Day

Lowest Ceiling: None Ft. AGL

Visibility: 10 SM

Altimeter: 29.82 "Hg

Temperature: 17 °C

Dew Point: 3 °C

Weather Conditions at Accident Site: Visual Conditions

Wind Direction: 220

Wind Speed: 5

Wind Gusts:

Visibility (RVR): Ft.

Visibility (RVV) SM

Precip and/or Obscuration:

No Obscuration; No Precipitation

Accident Information

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

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Administrative Information

Investigator-In-Charge (IIC)

Timothy W. Monville

Additional Persons Participating in This Accident/Incident Investigation:

Paul Hubbard
FAA/FSDO
Portland, ME