



# National Transportation Safety Board Aviation Accident Preliminary Report

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<b>Location:</b>	Hazelhurst, WI	<b>Accident Number:</b>	CEN18FA149
<b>Date &amp; Time:</b>	04/26/2018, 2250 CDT	<b>Registration:</b>	N127LN
<b>Aircraft:</b>	EUROCOPTER AS 350 B2	<b>Injuries:</b>	3 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Positioning		

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On April 26, 2018, about 2250 central daylight time, a Eurocopter AS 350 B2 helicopter, N127LN, impacted trees and terrain during cruise flight near Hazelhurst, Wisconsin. The pilot and two crewmembers were fatally injured. The helicopter was destroyed during the impact. The helicopter was registered to and operated by Air Methods Corporation as a Title 14 *Code of Federal Regulations* Part 91 repositioning flight. Night visual meteorological conditions were reported in the area about the time of the accident, and the flight was operating on a company visual flight rules flight plan. The flight originated from the Dane County Regional Airport-Truax Field (MSN), near Madison, Wisconsin, about 2104 and was destined for the Howard Young Medical Center Heliport (6OWI), near Woodruff, Wisconsin.

Earlier in the day the emergency medical services (EMS) crew had transported a patient to the Madison area. The purpose of this flight was to reposition the helicopter back to 6OWI. The helicopter was serviced with 80 gallons of fuel at MSN. According to initial information, the pilot radioed that he departed from MSN. The helicopter did not arrive at its destination at its estimated arrival time, and the operator started their search procedures for the helicopter. The Air Force Rescue Coordination Center placed a call to the operator and advised that an emergency locator transmitter signal associated with the helicopter was received by the center. The center informed the operator of a latitude and longitude in which to look for the helicopter. The helicopter was subsequently found near that location about 0215 on April 27, 2018.

The 34-year-old pilot held a Federal Aviation Administration (FAA) commercial pilot certificate with rotorcraft-helicopter and instrument helicopter ratings. He also held a private pilot certificate with an airplane single engine land rating. He held an FAA second class medical certificate issued on May 31, 2017. On his last application for the medical certificate the pilot reported having accumulated 3,200 hours of total flight time, with 100 hours logged with the preceding six months. According to initial information from the operator, the pilot received training on January 5 and 7, 2018 and satisfactorily passed a check ride.

N127LN was a 2006 model Eurocopter (Airbus) AS 350 B2, four-place, single-engine helicopter, with serial number 4149. The helicopter was configured for EMS transport services. It was powered by a Turbomeca Arriel 1D1 turboshaft engine, with serial number 19129. The engine had a maximum takeoff power rating of 732 shaft horsepower and a continuous power

rating of 625 horsepower. According to initial information, the helicopter was maintained under a company aircraft inspection program and had undergone 100 and 600-hour inspections on April 25, 2018, at an airframe total time of 5,152.8 hours. The helicopter was not equipped with a vehicle engine multifunction display or a digital electronic control unit. However, it was equipped with an enhanced ground proximity warning system (EGPWS).

At 2255, the recorded weather at the Lakeland Airport/Noble F. Lee Memorial Field, near Minocqua, Wisconsin, was: Wind calm; visibility 10 statute miles; sky condition clear; temperature 0° C; dew point -1° C; altimeter 29.88 inches of mercury.

At 2253, the recorded weather at the Rhinelander-Oneida County Airport, near Rhinelander, Wisconsin, was: Wind calm; visibility 10 statute miles; sky condition clear; temperature 2° C; dew point 1° C; altimeter 29.87 inches of mercury.

At 2253, the recorded weather at the Eagle River Union Airport, near Eagle River, Wisconsin, was: Wind calm; visibility 10 statute miles; sky condition clear; temperature 0° C; dew point 0° C; altimeter 29.86 inches of mercury.

According to U.S. Naval Observatory Sun and Moon Data, the end of local civil twilight in the Rhinelander, Wisconsin, area was 2031 and local moonset was at 0507 on April 27, 2018. The observatory characterized the phase of the moon as "waxing gibbous with 88% of the Moon's visible disk illuminated."

The helicopter was found in a wooded area about 178° and 8.4 nautical miles from 60WI. First responders indicated that the sky was clear, the moon was visible, and there was a smell of fuel at the time the helicopter was located. However, the wreckage did not exhibit any signs of fire. A tree about 70 ft tall about 66° and 47 feet from the nose of the wreckage had branches broken in its upper canopy. Trees in between this tree and the wreckage had their trunks and branches broken and linearly separated. The path of the broken and separated trunks and branches through the trees was steep. A ground impression about 11 ft by 9 ft and 2 ft deep was found in front of the helicopter wreckage. The helicopter came to rest on its right side. The heading of the wreckage from tail to nose was about 095°. During the on-scene examination, the smell of fuel was present at the site and in the ground below the helicopter. All major components of the helicopter were located at the site. The cockpit and cabin area was destroyed. The fuselage exhibited rearward crushing deformation. The tailboom was attached to the fuselage. The tail rotor gear box and tail rotor blades remained on the tail. However, the vertical fin had partially detached from the end of the tailboom. Both horizontal stabilizers were present on the tail. All three rotor blades remained attached to the rotor hub, and the rotor hub was attached to the transmission. The main rotor blades exhibited damage to include spar fractures and leading-edge abrasions and depressions. The main rotor hub rotated when the transmission's input drive shaft was rotated by hand. The fuel tank was fragmented. Yaw, pitch, lateral, and collective controls were traced from the cockpit to their respective servo actuators. Engine controls were traced from the cockpit through their respective bellcranks to their engine components. A magnetic plug in the hydraulic system had some particulate on its magnetic end. The filter bypass button on the hydraulic control block was popped. The hydraulic pump was turned by a drill and the pump exhibited a suction and pressure at the pump's inlet and outlet. Disassembly of the hydraulic pump revealed scoring witness marks on the pump

housing in its gear's plane of rotation and no debris or obstructions were observed within the pump ports.

The engine was found on the ground and was separated from the fuselage. The engine's compressor blades exhibited nick and gouge damage consistent with foreign object ingestion. The power turbine blades exhibited silver colored deposits on them. The power turbine was turned by hand and the drive train did not turn. Subsequent examination revealed that the engine's Module 5 reduction gearbox had migrated out of its installed position, rearward, to the extent its O-ring groove was visible. The Module 5 gearbox was removed for inspection of the input pinion torque alignment marks. The marks were found to be misaligned approximately 2 millimeters in the tightening direction which is consistent with engine power being delivered to the drive train during the main rotor blade impact sequence.

The Oneida County Coroner was asked to perform an autopsy on the pilot and to take toxicological samples.

The helicopter was equipped with an Appareo Vision 1000 recorder unit, which records to both a removable secure data (SD) card and internal memory. Both the unit and the SD card sustained impact damage. The unit and its SD card were shipped to the National Transportation Safety Board Recorder Laboratory to see if they contain data in reference to the accident flight. A hydraulic fluid sample and a fuel sample were retained for testing. Additionally, the hydraulic magnetic plug, the hydraulic pump, hydraulic filter, four actuators, and the EGPWS were retained for further examination.

### Aircraft and Owner/Operator Information

<b>Aircraft Manufacturer:</b>	EUROCOPTER	<b>Registration:</b>	N127LN
<b>Model/Series:</b>	AS 350 B2 NO SERIES	<b>Aircraft Category:</b>	Helicopter
<b>Amateur Built:</b>	No		
<b>Operator:</b>	AIR METHODS CORP	<b>Operating Certificate(s) Held:</b>	On-demand Air Taxi (135)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	QMLA

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	KARV, 1630 ft msl	Observation Time:	2255 CDT
Distance from Accident Site:	11 Nautical Miles	Temperature/Dew Point:	0°C / -1°C
Lowest Cloud Condition:	Clear	Wind Speed/Gusts, Direction:	Calm
Lowest Ceiling:	None	Visibility:	10 Miles
Altimeter Setting:	29.88 inches Hg	Type of Flight Plan Filed:	Company VFR
Departure Point:	MADISON, WI (MSN)	Destination:	WOODRUFF, WI (60WI)

## Wreckage and Impact Information

Crew Injuries:	3 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Fatal	Latitude, Longitude:	45.754444, -89.695833

## Administrative Information

Investigator In Charge (IIC):	Edward F Malinowski
Additional Participating Persons:	David Keenan; Federal Aviation Administration; Washington, DC Bryan Larimore; Turbomeca; Grand Praire, TX Emanuele Figlia; Airbus; Grand Praire, TX Dana Metz; Honeywell; Phoenix, AZ Cory Cummins; Air Methods; Denver, CO Peter Hupfer; Federal Aviation Administration; Milwaukee, WI Scott Tyrrell; Federal Aviation Administration; Fort Worth, TX Casey DeLanghe; Appareo Systems; Fargo, ND Xavier DeGastines; Bureau d'Enquêtes et d'Analyses; Paris, FN
Note:	The NTSB traveled to the scene of this accident.