Aviation Investigation Final Report

Location:	West Chicago, Illinois	**Accident Number:**	CHI03FA060
Date & Time:	January 28, 2003, 20:53 Local	**Registration:**	N109MX
Aircraft:	Agusta A109C	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The helicopter was destroyed when it impacted terrain about 2.0 nautical miles (nm) south of the departure airport during a positioning flight. Night marginal visual flight rules (MVFR) conditions prevailed with reduced visibilities and low clouds. After refueling the helicopter, the pilot requested to depart to the south in order to "status check a couple pieces of equipment" and then return to the heliplex located on the southeast perimeter of the airport. Aircraft radar track data showed the helicopter traveling south about 1.7 nm before turning to the south-southwest. While traveling to the south, the helicopter climbed to about 500 feet above ground level (agl) while accelerating from 95 knots to about 125 knots airspeed. The helicopter then entered an 18 second period where the climb rate increased from 500 feet/min to 2,000 feet/min and the helicopter reached a maximum altitude of about 1,000 feet agl. The helicopter decelerated from 125 to 100 knots airspeed during this climb. Based on the last two radar returns, the helicopter descended about 200 feet which resulted in a 1,350 feet/min descent rate. Further examination of the data showed the helicopter decelerating from 85 to 35 knots airspeed during the descent. The last radar return was at 800 feet agl and 425 feet east of the initial ground impact. The pilot was appropriately certificated to fly the helicopter and was employed as a pilot for an on-demand air ambulance service. The pilot was working his final shift as an employee with the company when the accident occurred. All primary airframe structural components, flight control systems, rotor systems, transmissions, and powerplant components were recovered at the accident site. Inspection of the recovered components did not exhibit any evidence of pre-impact malfunction. A review of the daily usage logs for the helicopter failed to reveal any unresolved maintenance discrepancies. The pilot who flew the helicopter prior to the accident flight did not report any malfunctions with the helicopter. A fuel sample was obtained from the source used to service the helicopter prior to the accident flight. The fuel sample was tested and met or exceeded the specifications for Aviation Turbine Fuel (Jet-A).

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain control of the helicopter while maneuvering, resulting in the excessive descent rate and impact with terrain. Factors to the accident included the dark night, low ceiling and reduced visibility at the time of the accident.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
2. (C) DESCENT - EXCESSIVE - PILOT IN COMMAND
3. (F) WEATHER CONDITION - LOW CEILING
4. (F) WEATHER CONDITION - DRIZZLE/MIST
5. (F) LIGHT CONDITION - DARK NIGHT

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
6. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On January 28, 2003, at 2053 central standard time (cst), an Agusta A109C helicopter, N109MX, piloted by an airline transport pilot (ATP), was destroyed during an in-flight collision with terrain about two nautical miles (nm) south of DuPage Airport (DPA), West Chicago, Illinois. Night marginal visual flight rules (MVFR) weather conditions prevailed at the time of the accident. The positioning flight was operating under the provisions of 14 Code of Federal Regulations (CFR) Part 91 without a flight plan. The pilot was fatally injured. The flight departed at 2051 and was maneuvering south of the airport at the time of the accident.

The helicopter was operated by Air Angels Incorporated, an on-demand air ambulance service. The operator is based at a heliplex located on the southeast perimeter of DPA. According to company personnel, the helicopter was returning from the DPA Flight Center after refueling with 56 gallons of Jet-A fuel.

The pilot of N109MX contacted the DuPage Control Tower at 2050:01 (hhmm:ss) and requested to "depart to the east if possible and head out to the south real quick and come back in on two left, and then land at the heliplex." At 2050:05, the tower controller told N109MX to "use caution departure uncontrolled, and ah, you gonna shoot an approach or just come in towards the numbers of two left?" The pilot of N109MX replied "I'm (unintelligible) status check a couple pieces of equipment we got then shoot two left, takeoff and land at the heliplex." The tower controller responded "that's no problem, Angel One you proceed as requested."

At 2051:10, a driver of a snow removal vehicle operating on runway 2L asked the tower controller if he needed to be off the runway to allow N109MX to land. The tower controller responded, "I was just debating that, um I would say you would be no problem out there, he's just gonna check some instruments and then break off probably at ah the approach lights and go to the heliplex." At 2051:15, the tower controller asked N109MX if he needed the snow removal vehicle to be off the runway during his approach. The accident pilot replied "That's negative." There were no additional communications with N109MX.

According to the tower controller, N109MX departed southbound from the Flight Center and while enroute the pilot "requested to continue south to check equipment." The tower controller stated he "observed a flash of light" to the south of the airport and that he was subsequently unable to communicate with the helicopter.

The helicopter operator initially reported that the marker beacon system was inoperative on the accident helicopter. However, at a later date the operator stated that the inoperable

marker beacon system was not on the accident helicopter, but on another aircraft at their heliplex. A review of the daily usage logs for the accident helicopter failed to reveal any discrepancies with the maker beacon system within 30 days of the accident. The pilot who flew the helicopter prior to the accident flight did not report any malfunctions with the helicopter, and had successfully flown an instrument landing system (ILS) approach just prior to the accident pilot being dispatched with the helicopter.

Aircraft radar track data for the period before and after the reported accident time was obtained from the Chicago Terminal Radar Approach Control (TRACON) facility. The obtained data indicated a single aircraft transmitting a visual flight rules transponder beacon code (1200) maneuvering south of DPA around the time of the accident.

The first radar return was at 2051:17, with the helicopter positioned about 0.4 nm east of the DPA control tower at 800 feet pressure altitude or about 200 feet above ground level (agl). The helicopter traveled to the south about 1.7 nm before turning to the south-southwest around 2052:13. The final radar return was at 2052:31, with the helicopter positioned about 2.0 nm south of the control tower at 1,400 feet pressure altitude (~800 feet agl). The last radar return was about 425 feet east of the initial ground impact.

While traveling to the south, the helicopter climbed to 1,100 feet pressure altitude (~500 feet agl) while accelerating from 95 knots to about 125 knots airspeed. At 2052:00, the helicopter's climb rate began increasing from 500 feet/min to about 2,000 feet/minute over an 18 second period. During this 18 second period the helicopter decelerated from 125 to 100 knots airspeed. At 2052:22, the helicopter was positioned about 1.9 nm south of the control tower at 1,600 feet pressure altitude (~1,000 feet agl). Based on the last two radar returns, the helicopter descended approximately 200 feet that resulted in a 1,350 feet/min descent rate. Further examination of the data showed the helicopter decelerating from 85 to 35 knots airspeed during the descent.

DAMAGE TO AIRCRAFT

The helicopter was destroyed by impact forces and a subsequent explosion/fire.

PERSONNEL INFORMATION

According to Federal Aviation Administration (FAA) records, the pilot, age 52, held an ATP certificate with a rotorcraft/helicopter rating. The pilot also had commercial privileges for single and multi-engine land airplanes and instrument airplane operations. He was type-rated for the Bell 212, Eurocopter BK-117, and Sikorsky 58. The pilot also held a certified flight instructor certificate with rotorcraft/helicopter and instrument helicopter ratings. FAA records show the pilot's last medical examination was completed on April 2, 2002, when he was issued a second-class medical certificate with no limitations or restrictions.

The pilot began his flying career with the United States Army in October 1968 and remained on

active duty until October 1984. Between December 1984 and July 1986, he provided instrument flight instruction for United States Army pilots while working for DWS Incorporated, Daleville, Alabama. The pilot was stationed in Yemen as the Chief of Standardization and Training for Bell Helicopter from September 1986 to April 1989. Beginning in May 1989 and continuing through January 1991, he was a pilot and company check-airman for Omniflight Helicopters, an air-ambulance operator based in Dallas, Texas. The pilot then took a position as a company check-airman for Petroleum Air Services, and was stationed in Egypt from February 1991 to August 1999. From February 2000 to August 2000 he was a pilot for Rocky Mountain Helicopters, an air-ambulance operator. The pilot was the Director of Training of Aris Helicopters Ltd., an air-ambulance operator, between August 2000 and September 2001. The pilot then joined Air Angels Incorporated on July 16, 2002.

According to company records, when hired the pilot had a total flight experience of 12,000 flight hours, of which 9,500 hours were in helicopters and 2,500 hours were in airplanes. The pilot reported having 11,200 hours as pilot-in-command (PIC). The pilot had accumulated 250 hours in actual instrument conditions, 310 hours in simulated instrument conditions, and 1,000 hours of night experience.

The pilot had flown 79.1 hours during the past year, 22.2 hours during the prior 90 days and 10.4 hours during the previous 30 days. The pilot had flown 1.9 hours during the 24 hours before the accident. The pilot's first flight in an Agusta A109C was on July 18, 2002, and he subsequently accumulated 56.3 hours in the helicopter. The pilot was approved for 14 CFR Part 135 operations after successfully passing a FAA Airman Competency/Proficiency Check on July 25, 2002.

The pilot worked 17 twelve-hour shifts during the previous 30 calendar days. The pilot's duty schedule comprised of 7 twelve-hour shifts, followed by 7 days off-duty. The accident occurred during the pilot's last shift for the seven-day work week. The pilot reported for duty on January 28, 2003, at 1900, after being off-duty for 12 hours. According to company personnel records, the pilot was working his final shift as an employee with Air Angels Incorporated when the accident occurred.

AIRCRAFT INFORMATION

The accident helicopter was an Agusta A109C, serial number 7604. The accident helicopter was operated as a light utility emergency medical service (EMS) helicopter and was configured with an extended door conversion that increased the cabin interior volume. The extended crew and cabin doors were installed in accordance with supplemental type certificate number SH701NE, originally developed by the Keystone Helicopter Corporation, West Chester, Pennsylvania. The helicopter's maximum certified gross weight was listed as 2,720 kg (5,997 lbs).

The accident helicopter was issued a standard airworthiness certificate on September 23, 1998, after being imported from Germany. The helicopter was maintained under the

provisions of a FAA approved inspection program. The last inspection, a 25 hour/30 day inspection, was performed on January 10, 2003, at 2,976.0 hours total time. Prior to the accident flight the aircraft had accumulated a total time of 2,994.3 hours.

The helicopter was powered by two 450 shaft-horsepower Allison 250-C20R/1 turbo-shaft engines. The left (number one) engine, serial number CAE295129, had accumulated a total time of 2,846.7 hours and 6,961 cycles. The right (number two) engine, serial number CAE295134, had accumulated at total time of 2,817.8 hours and 6,898 cycles.

METEOROLOGICAL INFORMATION

The closest weather reporting station to the accident site was located at the departure airport, about 2.0 nm north of the accident site. The airport is equipped with an Automated Surface Observing System (ASOS). The following weather conditions were reported prior to and after the time of the accident:

At 1953: Wind 360 degrees true at 4 knots, visibility 3 statute miles (sm) with mist, few clouds at 2,400 feet agl, overcast ceiling at 7,000 feet agl, temperature -03 degrees Celsius, dew point -03 degrees Celsius, altimeter setting 30.02 inches-of-mercury, sea-level pressure 1017.7 millibars.

At 2053: Wind 340 degrees true at 8 knots, visibility 4 sm with mist, scattered clouds at 700 feet agl, broken ceiling at 1,400 feet agl, overcast ceiling at 7,000 feet agl, temperature -02 degrees Celsius, dew point -03 degrees Celsius, altimeter setting 30.06 inches-of-mercury, sea-level pressure 1019.0 millibars.

At 2104: Wind 350 degrees true at 6 knots, visibility 4 sm with mist, broken ceiling at 900 feet agl, overcast ceiling at 1,400 feet agl, temperature -02 degrees Celsius, dew point -03 degrees Celsius, altimeter setting 30.05 inches-of-mercury, ceiling variable between 500 and 1,200 feet agl.

Night conditions were prevailing with 15 percent of the moon's visible disk illuminated, according to data supplied by the U.S. Naval Observatory.

COMMUNICATIONS

The pilot was communicating with the DuPage control tower at the time of the accident. A transcript of the voice communications is included with the docket material associated with this factual report.

AIRPORT INFORMATION

The DuPage Airport (DPA) is located in West Chicago, Illinois. The airport has four asphalt runways: 2L/20R (7,570 feet by 100 feet), runway 2R/20L (5,100 feet by 100 feet), runway

10/28 (4,751 feet by 75 feet), and runway 15/33 (3,401 feet by 100 feet). The general airport elevation is listed as 758 feet mean sea level (msl).

The elevation of the runway 2L threshold is listed as 751.3 feet msl. Runway 2L is serviced by an instrument landing system (ILS) used for precision instrument approaches. The locator outer marker and middle marker are positioned 5.2 and 0.4 nm from the runway threshold, respectively. A medium intensity approach lighting system with runway alignment lights precedes the runway threshold.

FLIGHT RECORDERS

The accident helicopter was not equipped, nor was it required to be equipped, with a cockpit voice recorder (CVR) or flight data recorder (FDR).

WRECKAGE AND IMPACT INFORMATION

The National Transportation Safety Board's on-scene investigation began on January 28, 2003.

A global positioning system (GPS) receiver was used to identify the position of the initial impact as 41-degrees 52.340-minutes north latitude, 88-degrees 15.26-minutes west longitude. The aircraft impacted a harvested cornfield located about two nm south of DPA.

The wreckage was distributed in a fan-shaped area that initiated from the initial impact point. The centerline of the debris field was situated between the initial impact point and the main wreckage. The main wreckage was positioned about 187 feet from the initial impact point on a 243 degree magnetic bearing. The main wreckage was located along a tree line and a barbed-wire fence that bordered the western edge of the field. The main wreckage consisted of the main transmission, main rotor mast and hub assembly, both engines, the cockpit, and a majority of the fuselage structural components. The main cabin and cockpit were damaged and fragmented.

The tail rotor, tail rotor gearbox, tailboom, and the upper vertical fin were found separated from each other, 20-25 feet from the initial impact point. The entire main landing gear assembly was found about 97 feet from the initial impact point. The EMS litter assembly was located about 152 feet from the initial impact point.

The main rotor system was destroyed. However, all portions of the main rotor system were accounted for at the accident site. Most portions of the fragmented rotor blade system were found on the north side of the debris centerline.

The wreckage was recovered and relocated to a nearby facility for reconstruction efforts, due to the extensive damage and overall distribution of the wreckage. The wreckage was first sorted by airframe location and then repositioned in a two-dimensional reconstruction. The two-dimensional reconstruction determined that all primary airframe structural components,

flight control systems, rotor systems, transmissions, and powerplant components were present.

A majority of the recovered wreckage exhibited fire and heat damage on both internal and external surfaces. Flight control continuity could not be established due to the extensive damage to all components. The mixing lever assembly and the two lateral actuator magnetic brakes were found intact with fractured control rod-ends. Inspection of the recovered flight control components did not exhibit any evidence of pre-impact malfunction.

The tailboom assembly was found separated from the aft fuselage and all four structural longerons were sheared, consistent with overload. The lower tailboom surface was crushed upward along its entire length. The upper vertical fin was found separated from the tailboom. The lower vertical fin and stinger remained attached to the tailboom and were impacted up against the lower tailboom surface. The right and left elevators remained connected by their common torque tube, and elevator control continuity was confirmed throughout the tailboom assembly.

The tail rotor was found separated from its mast and gearbox. The tail rotor blade damage was consistent with rotational damage, including S-shape blade bending. The tail rotor gearbox was found separated from the tailboom, but remained attached to the upper portion of its tailboom structural support. The lower portion of the support remained attached to the tailboom and the fracture features were consistent with overload. The input pinion splines were not damaged and no abnormal wear signatures were noted. The tail rotor gearbox exhibited continuity when the output shaft was rotated by hand. The non-rotating levers, sleeves and linkages exhibited continuity when exercised by hand. The rotating components were fractured at the end lugs and the remaining portions remained connected to the tail rotor blade grips. The tail rotor servo actuator was removed for additional testing.

The aft tail rotor driveshaft remained attached to the tailboom. The driveshaft was displaced forward about three-inches. The Thomas drive coupling was bent to the left, exhibiting overtorque damage signatures. The aft adapter splines exhibited contact damage with the tail rotor gearbox input splines.

The main transmission was found with the main wreckage and remained partially attached to its fuselage structural supports. The support structure was fragmented and exhibited overload fracture features. The transmission case contained a vertical fracture on the forward side and could not be rotated. The coupling gearbox (freewheeling unit) case was fractured. The tailrotor main drive pinion, output splines, and rotor brake disk were found intact. The two engine input freewheels were verified to be operational. The two engine driveshafts exhibited rotational overtorque fracture features at the shear-neck sections as well as their associated Thomas drive couplings.

All four main rotor blades were destroyed and were found fragmented around the accident site. The main rotor damage was consistent with mast rotation at impact. All four weighted

blade tips were accounted for at the accident site. Each blade root remained attached to its respective grip and all blade-retaining pins were in place with appropriate locking hardware. The main rotor hub remained attached to the main rotor mast. Two consecutive main rotor lag dampeners were found fully retracted, while the other two were fully extended. All four pitch-change links were fractured at the upper rod-end neck, and the remaining link bodies remained connected to the rotating swash-plate assembly. The main rotor hub damage was consistent with a sudden-stoppage event. Two of the three flight control servos were separated from the transmission attach support and were fractured at the stem neck. The right-rear flight control servo remained attached to the transmission support and the non-rotating swashplate ring. The three flight control servos were removed for additional testing. No anomalies were found with the swashplate assembly.

The main landing gear assembly was recovered separated from the fuselage. The two brace assemblies were fractured, but remained attached to their corresponding gear legs. Both actuators were found in the fully extended position, consistent with a retracted main landing gear. The nose landing gear actuator was found in the fully retracted position, consistent with a retracted landing gear. The forward-lower corner of both main landing gear doors were symmetrically crushed upward about 40 degrees.

Both engines were found in the main wreckage. The engines were crated and shipped to the manufacturer's facility for teardown inspections. Refer to the Test and Research section below for additional engine information.

Photo documentation of the aircraft wreckage reconstruction is included with the docket material associated with this factual report.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on the pilot on January 29, 2003, at the DuPage County Coroner's Office, Wheaton, Illinois.

Toxicology samples for the pilot were submitted to the FAA Civil Aeromedical Institute, Oklahoma City, Oklahoma. A Forensic Toxicology Fatal Accident Report was prepared and the results were negative for all tests performed.

TEST AND RESEARCH

The three main rotor servo actuators, the tail rotor servo actuator, and two variable delivery hydraulic pumps were examined and tested at an overhaul facility. The two variable delivery hydraulic pumps functioned as designed. The three main rotor servo actuators were mounted on a test bench and functioned when hydraulic pressure was applied. The actuators did not meet design specifications due to impact damage sustained by the exterior components. The tail rotor servo actuator was in a serviceable condition and functioned as designed.

The two gas generator rpm and two turbine outlet temperature (TOT) indicators were evaluated at the manufacturer's facility. The non-volatile memory chips that retain any design exceedance were removed and placed in operational units. The values obtained during the readout did not exceed the specified design limitations and/or conditions for their respective systems.

The caution warning panel was disassembled and the individual light bulb filaments were examined. Only one of the light cartridges (passenger compartment door(s) open) contained light bulbs with stretched filaments. The passenger compartment doors and their latch components were subsequently examined. The passenger compartment doors were located along the wreckage debris path. Three of the four latch bolts were recovered and two of the bolts remained connected to their respective control rods. The recovered latch bolts exhibited normal wear signatures. Both door latches were found in the closed position and their mechanical linkages had impact markings consistent with the latch being closed at impact.

Both engines were examined and disassembled at the manufacturer's facility. Both compressor sections contained extensive blade damage. All blade fractures were consistent with foreign object ingestion and contact with a distorted front support and dented case halves. Both compressor tiebolts were fractured in overload. Both spur adapter gearshafts were torsionally sheared forward of the rear splines. The splined sections remained engaged with the turbine to compressor couplings, resulting in rotational damage to both pinion gear couplings. Both fourth stage nozzles exhibited extensive rotational scoring and gouging on the blade path of the third stage wheel. No pre-impact anomalies were found with either engine that would have resulted in a loss of engine power.

A fuel sample was obtained from the source used to service the accident helicopter just prior to the accident flight. The sample was submitted to the manufacturer for chemical testing and verification. The results of the tests met or exceeded the specifications for Aviation Turbine Fuel (Jet-A).

ADDITIONAL INFORMATION

The complete wreckage was released to a representative of the owner on March 3, 2004.

Parties to the investigation included the FAA, Agusta Aerospace Corporation, Rolls-Royce Corporation, and Air Angels Incorporated.

Pilot Information

Certificate:	Airline transport	**Age:**	52,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter; Instrument helicopter	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	April 2, 2002
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	July 25, 2002
Flight Time:	12000 hours (Total, all aircraft), 184 hours (Total, this make and model), 11200 hours (Pilot In Command, all aircraft), 22 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Agusta	**Registration:**	N109MX
Model/Series:	A109C	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	7604
Landing Gear Type:	Retractable - Tricycle	**Seats:**	8
Date/Type of Last Inspection:	January 10, 2003 Continuous airworthiness	**Certified Max Gross Wt.:**	5997 lbs
Time Since Last Inspection:	18.3 Hrs	**Engines:**	2 Turbo shaft
Airframe Total Time:	2994.3 Hrs at time of accident	**Engine Manufacturer:**	Allison
ELT:	Installed, not activated	**Engine Model/Series:**	250-C20R/1
Registered Owner:	Oak Brook Aviation Leasing, LLC.	**Rated Power:**	450 Horsepower
Operator:	Air Angels, Inc.	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	X34A

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	DPA,758 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	20:53 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Scattered / 700 ft AGL	**Visibility**	4 miles
Lowest Ceiling:	Broken / 1400 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	340°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.05 inches Hg	**Temperature/Dew Point:**	-2°C / -3°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	West Chicago, IL (DPA)	**Type of Flight Plan Filed:**	None
Destination:	West Chicago, IL (DPA)	**Type of Clearance:**	VFR
Departure Time:	20:51 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	DuPage Airport DPA	**Runway Surface Type:**	
Airport Elevation:	758 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	1 Fatal	**Latitude, Longitude:**	41.872222,-88.254447

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew
Additional Participating Persons:	Dennis Anderson; Federal Aviation Administration - DuPage FSDO; West Chicago, IL Robert Donahue; Federal Aviation Administration - DuPage FSDO; West Chicago, IL Leonardo Monti; Agusta Aerospace Corporation; Philadelphia, PA Charles W Anderson; Agusta Aerospace Corporation; Philadelphia, PA John J Swift; Rolls-Royce Corporation; Indianapolis, IN Glen Wenzel; Air Angels Incorporated; West Chicago, IL
Original Publish Date:	December 3, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=56418