



Aviation Investigation Final Report

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| Location: | SCHAUMBURG, Illinois | Accident Number: | CHI93LA320 |
| Date & Time: | August 12, 1993, 12:30 Local | Registration: | N1347X |
| Aircraft: | BELL 47-G5 | Aircraft Damage: | Substantial |
| Defining Event: | | Injuries: | 1 Minor |
| Flight Conducted Under: | Part 137: Agricultural | | |

Analysis

The aerial application helicopter took off with full fuel (55 gal.), and a full spray load (50 gal.). Witnesses reported the helicopter used the entire runway to get airborne. The helicopter was leveled off at 500 feet agl. The pilot stated he heard a loud bang and felt vibrations shortly after level off. He entered an autorotation. He said he flared the helicopter at 50 feet, but could not slow the rate of descent. The helicopter made a hard landing in a residential area. Post-landing investigation of the helicopter flight controls revealed no malfunction. A test run of the engine was performed without any problems.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's improper autorotation techniques.

Findings

Occurrence #1: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

- Findings
1. PRECAUTIONARY LANDING - PERFORMED - PILOT IN COMMAND
 2. (C) AUTOROTATION - IMPROPER - PILOT IN COMMAND

Factual Information

On August 12, 1993, at 1230 central daylight time, a Bell 47-G5 helicopter, N1347X, operated by Clarke Environmental Mosquito Control, Inc., Roselle, Illinois, sustained substantial damage from a hard autorotative landing near Schaumburg, Illinois. The commercial pilot received minor injuries. The aerial application flight originated at the Schaumburg Air Park at 1225. No flight plan was filed, and visual meteorological conditions prevailed at the time.

The helicopter was serviced at the Schaumburg Air Park before takeoff. The load was 50 gallons of spray mixture, and 55 gallons of fuel. Witnesses at the airport said the helicopter used the entire runway to become airborne.

The pilot reported he leveled off at 500 feet above ground level. After levelling off he heard a loud bang behind him, and the helicopter began to vibrate. The pilot said he entered an autorotation and picked out a landing site to his right. He flared the helicopter at 50 feet, and stated he felt no response when he raised the collective. The helicopter landed hard.

The helicopter was examined by an FAA Airworthiness Inspector. The inspector reported the flight control system was functional. The engine was examined, and a functional test run was performed. The inspector noted no problems with the engine.

Pilot Information

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| Certificate: | Commercial | Age: | 40, Male |
| Airplane Rating(s): | None | Seat Occupied: | Left |
| Other Aircraft Rating(s): | Helicopter | Restraint Used: | |
| Instrument Rating(s): | Helicopter | Second Pilot Present: | No |
| Instructor Rating(s): | None | Toxicology Performed: | No |
| Medical Certification: | Class 2 Valid Medical--no waivers/lim. | Last FAA Medical Exam: | December 4, 1992 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | |
| Flight Time: | 1800 hours (Total, all aircraft), 250 hours (Total, this make and model), 1600 hours (Pilot In Command, all aircraft), 200 hours (Last 90 days, all aircraft), 50 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|-------------------------|---------------------------------------|-----------------|
| Aircraft Make: | BELL | Registration: | N1347X |
| Model/Series: | 47-G5 47-G5 | Aircraft Category: | Helicopter |
| Year of Manufacture: | | Amateur Built: | |
| Airworthiness Certificate: | Normal | Serial Number: | 47-65 |
| Landing Gear Type: | Skid | Seats: | 2 |
| Date/Type of Last Inspection: | July 29, 1993 Annual | Certified Max Gross Wt.: | 2850 lbs |
| Time Since Last Inspection: | 11 Hrs | Engines: | 1 Reciprocating |
| Airframe Total Time: | | Engine Manufacturer: | LYCOMING |
| ELT: | Not installed | Engine Model/Series: | VO-435-B1A |
| Registered Owner: | CLARKE MOSQUITO CONTROL | Rated Power: | 260 Horsepower |
| Operator: | | Operating Certificate(s) Held: | |
| Operator Does Business As: | | Operator Designator Code: | MMOG |

Meteorological Information and Flight Plan

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|---|-------------------------|---|------------------|
| Conditions at Accident Site: | Visual (VMC) | Condition of Light: | Day |
| Observation Facility, Elevation: | ORD ,667 ft msl | Distance from Accident Site: | 9 Nautical Miles |
| Observation Time: | 11:50 Local | Direction from Accident Site: | 90° |
| Lowest Cloud Condition: | Scattered / 2100 ft AGL | Visibility | 4 miles |
| Lowest Ceiling: | Broken / 5000 ft AGL | Visibility (RVR): | |
| Wind Speed/Gusts: | 6 knots / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 200° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29 inches Hg | Temperature/Dew Point: | 26°C / 22°C |
| Precipitation and Obscuration: | N/A - None - Haze | | |
| Departure Point: | | Type of Flight Plan Filed: | None |
| Destination: | | Type of Clearance: | None |
| Departure Time: | 12:25 Local | Type of Airspace: | Class G |

Airport Information

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|-----------------------------|---|----------------------------------|-----------------------|
| Airport: | | Runway Surface Type: | |
| Airport Elevation: | | Runway Surface Condition: | |
| Runway Used: | 0 | IFR Approach: | None |
| Runway Length/Width: | | VFR Approach/Landing: | Precautionary landing |

Wreckage and Impact Information

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|----------------------------|---------|-----------------------------|--------------------------|
| Crew Injuries: | 1 Minor | Aircraft Damage: | Substantial |
| Passenger Injuries: | | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 1 Minor | Latitude, Longitude: | 42.009948,-88.10009(est) |

Administrative Information

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| Investigator In Charge (IIC): | Doub, Mark |
| Additional Participating Persons: | SCOTT LANDORF; W. CHICAGO , IL |
| Original Publish Date: | August 17, 1994 |
| Last Revision Date: | |
| Investigation Class: | Class |
| Note: | |
| Investigation Docket: | https://data.ntsb.gov/Docket?ProjectID=9279 |

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