



Aviation Investigation Final Report

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| Location: | SALINA, Kansas | Accident Number: | CHI00LA044 |
| Date & Time: | December 13, 1999, 14:35 Local | Registration: | N58408 |
| Aircraft: | Hughes 269C | Aircraft Damage: | Substantial |
| Defining Event: | | Injuries: | 2 Serious |
| Flight Conducted Under: | Part 91: General aviation - Other work use | | |

Analysis

The pilot was performing a practice autorotation. He stated that he began the practice autorotation by '...lowering the collective all the way and reducing the throttle setting to a point where the engine RPM and rotor RPM needles split. I verified that the needles split, but something didn't feel normal.' The pilot elected to abandon the maneuver and added power to recover. The pilot stated: 'As best I can remember, the engine and rotor RPM needles had synchronized [sic] and were at approximately the right clock position on the tach face.' The pilot said that at this time he was '...becoming aware of an extremely high descent rate.' The pilot flight manual for the aircraft describes the procedure for practice autorotation as follows: 'Split the needles by lowering the collective while maintaining throttle setting. The throttle correlation will establish a high idle rpm (approximately 2000 rpm) which will aid in preventing the engine from loading up or stalling during recovery. No apparent preexisting anomalies were detected with respect to the aircraft or systems. The pilot listed no mechanical malfunction in his written report.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to follow the published practice autorotation procedures, the improper use of throttle, and the inadequate flare.

Findings

Occurrence #1: HARD LANDING

Phase of Operation: LANDING

Findings

1. AUTOROTATION - SIMULATED - PILOT IN COMMAND
2. (C) PROCEDURES/DIRECTIVES - NOT FOLLOWED - PILOT IN COMMAND
3. (C) THROTTLE/POWER CONTROL - IMPROPER USE OF - PILOT IN COMMAND
4. (C) FLARE - INADEQUATE - PILOT IN COMMAND

Factual Information

On December 13, 1999, at 1435 central standard time, a Hughes 269C, piloted by a commercial pilot, sustained substantial damage when it impacted the terrain following a practice autorotation about four miles south of the Salina Municipal Airport, Salina, Kansas. Visual meteorological conditions prevailed at the time of the accident. The personal flight was conducted under the provisions of 14 CFR Part 91 and was not on a flight plan. The pilot and his one passenger received serious injuries. The local flight originated from the Salina Municipal Airport about 1400.

In a written statement, the pilot said that he began the practice autorotation by "...lowering the collective all the way and reducing the throttle setting to a point where the engine RPM and rotor RPM needles split. I verified that the needles split, but something didn't feel normal." The pilot elected to abandon the maneuver and added power to recover. The pilot stated that "...the engine and rotor RPM needles had synchronized and were at approximately the right clock position on the tach face." The pilot said that at this time he was "...becoming aware of an extremely high descent rate." The pilot said that he started the maneuver at about 700 feet. The pilot stated, "just prior to impact, I applied full up collective and full aft cyclic."

The pilot flight manual for the aircraft describes the procedure for practice autorotation as follows: "Split the needles by lowering the collective while maintaining throttle setting. The throttle correlation will establish a high idle rpm (approximately 2000 rpm) which will aid in preventing the engine from loading up or stalling during recovery. Conversely, when the collective is raised without increasing throttle, the correlation is such that only minor throttle adjustments will be required to perform a smooth recovery without exceeding 2700 rpm."

The Federal Aviation Administration performed a postaccident examination of the aircraft. No preexisting anomalies were detected with respect to the aircraft or systems. The pilot listed no mechanical malfunction in his written report.

Pilot Information

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| Certificate: | Airline transport; Commercial; Flight instructor | Age: | 45, Male |
| Airplane Rating(s): | Single-engine land; Multi-engine land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | Helicopter | Restraint Used: | |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | Airplane multi-engine; Airplane single-engine; Instrument airplane | Toxicology Performed: | No |
| Medical Certification: | Class 2 Valid Medical--no waivers/lim. | Last FAA Medical Exam: | January 19, 1999 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | |
| Flight Time: | 12503 hours (Total, all aircraft), 112 hours (Total, this make and model), 12066 hours (Pilot In Command, all aircraft), 75 hours (Last 90 days, all aircraft), 18 hours (Last 30 days, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|-------------------------|---------------------------------------|-----------------|
| Aircraft Make: | Hughes | Registration: | N58408 |
| Model/Series: | 269C 269C | Aircraft Category: | Helicopter |
| Year of Manufacture: | | Amateur Built: | |
| Airworthiness Certificate: | Normal | Serial Number: | 1090837 |
| Landing Gear Type: | Skid | Seats: | 2 |
| Date/Type of Last Inspection: | November 9, 1999 Annual | Certified Max Gross Wt.: | 2050 lbs |
| Time Since Last Inspection: | 5 Hrs | Engines: | 1 Reciprocating |
| Airframe Total Time: | 1458 Hrs | Engine Manufacturer: | Lycoming |
| ELT: | Not installed | Engine Model/Series: | H10-360-D1A |
| Registered Owner: | BBI INC. | Rated Power: | 190 Horsepower |
| Operator: | | Operating Certificate(s) Held: | None |
| Operator Does Business As: | | Operator Designator Code: | |

Meteorological Information and Flight Plan

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| Conditions at Accident Site: | Visual (VMC) | Condition of Light: | Day |
| Observation Facility, Elevation: | SLN ,1273 ft msl | Distance from Accident Site: | 4 Nautical Miles |
| Observation Time: | 15:53 Local | Direction from Accident Site: | |
| Lowest Cloud Condition: | Clear | Visibility | 10 miles |
| Lowest Ceiling: | None | Visibility (RVR): | |
| Wind Speed/Gusts: | 9 knots / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 170° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29 inches Hg | Temperature/Dew Point: | 9°C / -2°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | (SLN) | Type of Flight Plan Filed: | None |
| Destination: | | Type of Clearance: | VFR |
| Departure Time: | 00:00 Local | Type of Airspace: | Class D |

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: | Simulated forced landing |

Wreckage and Impact Information

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|----------------------------|-----------|-----------------------------|---------------------------|
| Crew Injuries: | 1 Serious | Aircraft Damage: | Substantial |
| Passenger Injuries: | 1 Serious | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 2 Serious | Latitude, Longitude: | 38.810062,-97.610992(est) |

Administrative Information

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| Investigator In Charge (IIC): | Brannen, John |
| Additional Participating Persons: | JACK WILLIAMS; WICHITA , KS |
| Original Publish Date: | January 18, 2001 |
| Last Revision Date: | |
| Investigation Class: | Class |
| Note: | |
| Investigation Docket: | https://data.nts.gov/Docket?ProjectID=48518 |

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).