Aviation Investigation Final Report

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 syncronized [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 syncronized 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 decribes 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

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

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:**	HIO-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

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

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

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

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.ntsb.gov/Docket?ProjectID=48518