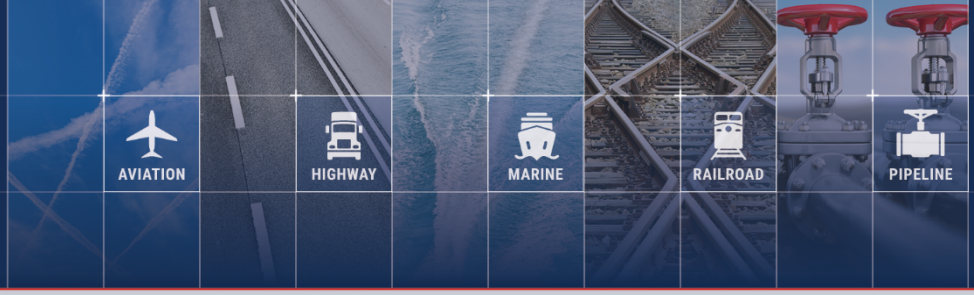

Aviation Investigation Final Report

Location:	Watkins, Colorado	**Accident Number:**	DEN03FA090
Date & Time:	May 28, 2003, 09:05 Local	**Registration:**	N9643F
Aircraft:	Hughes 269C	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

Witnesses said the helicopter had been flying in a left-hand traffic pattern, practicing autorotations to a taxiway. The helicopter had flown the pattern approximately five times and each time, the helicopter descended in a nose-down attitude, leveled off and hovered, "sometimes rising slightly." The witness who saw the accident said the "helicopter descended in a nose-down attitude, but it did not appear to level off. It appeared to strike the ground with its right skid." He saw a cloud of dust and saw the helicopter start spinning around rapidly. It struck the ground, rolled over on its right side, and came to rest between two taxiways. The instructor was fatally injured and the pilot receiving instruction was seriously injured. There was no evidence of preimpact failure or malfunction of the airframe or engine.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: failure of both pilots to initiate a timely recovery from a practice autorotation. A contributing factor was the instructor's inadequate supervision of the pilot receiving instruction.

Findings

Occurrence #1: DRAGGED WING,ROTOR,POD,FLOAT OR TAIL/SKID
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

1. (C) LEVEL OFF - NOT ATTAINED - DUAL STUDENT
2. (F) SUPERVISION - INADEQUATE - PILOT IN COMMAND(CFI)

Factual Information

HISTORY OF FLIGHT

On May 28, 2003, approximately 0905 mountain daylight time, a Hughes 269C helicopter, N9643F, owned and operated by Highlander Helicopter Leasing, was destroyed when it impacted terrain during landing at Front Range Airport, Watkins, Colorado. The commercial certificated flight instructor was fatally injured, and the private pilot receiving instruction was seriously injured. Visual meteorological conditions prevailed. No flight plan had been filed for the local instructional flight being conducted under Title 14 CFR Part 91. The flight originated approximately 0850.

According to several witnesses, the helicopter had been flying in a left-hand traffic pattern, practicing autorotations on taxiway Charlie. The helicopter had flown the pattern approximately five times, and each time the helicopter descended in a nose-down attitude, leveled off and hovered, "sometimes rising slightly." Another witness, who was working on an oil derrick located approximately 1/4-mile south of taxiway Charlie, saw the accident. He said the "helicopter descended in a nose-down attitude, but it did not appear to level off." From his perspective, it "appeared to strike the ground with its right skid." He said he saw a cloud of dust and saw the helicopter start spinning around rapidly. It struck the ground, rolled over on its right side, and came to rest between taxiways Charlie and Bravo.

According to the Front Range Airport Authority, they received the first report of a helicopter accident at 0911. The receptionist called 9-1-1 at 0913 and, based on reports from personnel on site, an air ambulance was requested. An AirLife helicopter arrived at 0923, and departed with the injured pilot at 0945. The fire department was summoned at 0926, arrived on scene at 0928, and returned to service at 1015.

PERSONNEL INFORMATION

The pilot-in-command held a commercial pilot certificate with rotorcraft-helicopter and instrument-helicopter ratings. He also held a flight instructor certificate with a rotorcraft-helicopter rating, and private pilot privileges in single-engine land airplanes. His second class airman medical certificate, dated April 1, 2003, contained the limitation, "Must wear corrective lenses." A waiver, based on a Statement of Demonstrated Ability, required that he "must wear corrective lenses for distant vision and possess glasses for near vision," due to "defective distant vision poorer than 20/200 corrected to 20/20 bilaterally." His two logbooks were made available for inspection. The first logbook contained entries from February 2, 1998, to May 21, 1998. The second logbook contained entries from December 30, 1991, to January 23, 2003. As of that date, he had logged the following flight time (in hours):

Total time, 1,116.6
Pilot-in-Command, 992.7
Instruction Received, 123.8
Instruction Given, 401.0
Actual Instruments, 0.7
Simulated Instruments, 38.2
Night, 67.2
Airplane single-engine land, 120.8
    Cessna 152, 1.9
    Cessna 172, 15.4
    Piper PA-28, 4.5
    Piper PA-38, 73.5
    Simulator, 12.4
Rotorcraft-helicopter, 983.4
    Enstrom F-28, 257.0
    Bell 206, 112.6
    Schweizer 269C, 569.4
    Robinson R22, 64.0
    Rotorway 162F, 1.5
    H300, 0.8
Flight instructor, 401.0

The pilot receiving instruction held a private pilot certificate, dated April 4, 2003, with a rotorcraft-helicopter rating. His practical test was done in a Robinson R22. At the conclusion of the check ride, the designated examiner wrote in his logbook, "Strive for perfection on every flight. DON'T BE SLOPPY. Nail the numbers." His first class airman medical certificate, dated October 22, 2002, contained no limitations or restrictions. His flight logbook contained entries from November 1, 2002, to May 27, 2003. As of that date, he had logged the following flight time (in hours):

Total time, 80.3
Rotorcraft-helicopter: 80.9
    Hughes 269C, 7.3
    Robinson R22, 73.0
Instruction Received, 74.4
Pilot-in-Command, 13.8
Solo, 5.1
Night, 3.1

According to the helicopter daily log sheet, the accident flight started at a Hobbs meter reading of 370.8 hours. The Hobbs meter read 371.1 hours at the accident site, a difference of 0.3 hours.

AIRCRAFT INFORMATION

Hughes Helicopters, Inc., manufactured N9643F, a model 269C (s/n 1200076), in 1972. It was equipped with a Lycoming HIO-360-B1A engine (s/n L-7626-51A).

According to the helicopter maintenance records, the last annual inspection was performed on February 25, 2003, at a tachometer time of 194.9 hours, and an airframe total time of 869.8 hours. The last100-hour inspection was performed on April 23, 2003, at a tachometer time of 303.4 hours, and an airframe total time of 978.3 hours. Total airframe time was 1,041 hours.

METEOROLOGICAL INFORMATION

At 0853, the Denver International Airport METAR (routine aviation meteorological report) was as follows: Wind, 270 degrees at 8 knots; visibility 10 statute miles (or greater); few clouds at 7,500 feet; temperature, 18 degrees Celsius; dew point, 14 degrees Celsius; altimeter setting, 30.43 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

Taxiways Bravo and Charlie are adjacent to each other. Both are 2,000 feet long and 50 feet wide, oriented in an east/west direction. The helicopter was located between the two taxiways, and 680 feet west of the east end of the Taxiway Charlie. It lay on its right side, facing east-northeast.

The front portion of the right skid was broken and bent aft mid-span between the cross tube and the skid leg. The left skid was not damaged. The canopy was fragmented, and the frame had separated from the airframe. The tail rotor drive shaft was sheared in torsion. The tail boom was crushed inward midspan on the left side. The vertical stabilizer was crushed aft on the upper portion of the airfoil. The tailskid showed scraping marks on the bottom rear portion. The main rotor blades were arbitrarily labeled for identification purposes. Rotor blade "A" was 47 feet southeast, and rotor blade "B" was 6 inches north, of the wreckage. Rotor blade "C" remained attached to the rotor hub. It was bent down and aft behind the right side of the aircraft. It protruded through the upper rear portion of the cockpit on the right side. The tail rotor gearbox was separated from the tail boom and was located 40 feet east of rotor blade "A." The shattered tail rotor was separated from the gearbox and was located 53 feet south of the gearbox, on the south side of Taxiway Charlie. The composite tail rotor was shattered.

Examination of the cockpit instruments revealed the following indications and settings: airspeed, 25 mph; altimeter, 5,020 feet, 1031 Mb; oil pressure, 125 degrees; oil pressure, 0 psi; ammeter, 0 amps; magnetos, both; transponder, 1200, on; battery/alternator, on; rotating beacon, on; fuel boost, off; mixture, full rich; clock, 1:17 (running).

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy (AA03-209) was performed on the pilot by the Adams County Coroner's Office on

May 29, 2003. FAA Civil Aeromedical Institute (CAMI) in Oklahoma City, Oklahoma, conducted a toxicological screen on specimens from the pilot. According to CAMI's report (#200300142001), no carbon monoxide or cyanide detected were detected in blood, no ethyl alcohol was detected in vitreous, and no drugs were detected in urine.

According to rehabilitation hospital medical personnel, the surviving pilot had no recollection of the events leading up to the accident. They said the prognosis of him recalling any details would be doubtful.

TESTS AND RESEARCH

The engine was disassembled and inspected on August 27, 2003. No discrepancies were noted.

ADDITIONAL INFORMATION

The wreckage was released to the insurance company representative on June 2, 2003.

Flight instructor Information

Certificate:	Commercial; Flight instructor; Private	**Age:**	31,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	Yes
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	April 1, 2003
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	October 29, 2002
Flight Time:	1117 hours (Total, all aircraft)		

Pilot Information

Certificate:	Private	**Age:**	25,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	October 22, 2002
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	82 hours (Total, all aircraft), 1 hours (Total, this make and model), 15 hours (Pilot In Command, all aircraft), 23 hours (Last 90 days, all aircraft), 1 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Hughes	**Registration:**	N9643F
Model/Series:	269C	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1200076
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	April 23, 2003 100 hour	**Certified Max Gross Wt.:**	1550 lbs
Time Since Last Inspection:	68 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1041 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	HIO-360-B1A
Registered Owner:	Highlander Helicopter Leasing LLC	**Rated Power:**	205 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	DEN,5431 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	08:53 Local	**Direction from Accident Site:**	315°
Lowest Cloud Condition:	Few / 7500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.43 inches Hg	**Temperature/Dew Point:**	18°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Watkins, CO (FTG)	**Type of Flight Plan Filed:**	None
Destination:	(FTG)	**Type of Clearance:**	None
Departure Time:	08:50 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Front Range Airport FTG	**Runway Surface Type:**	Concrete
Airport Elevation:	5512 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	C	**IFR Approach:**	None
Runway Length/Width:	2000 ft / 50 ft	**VFR Approach/Landing:**	Simulated forced landing;Touch and go;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal, 1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	39.783611,-104.535003

Administrative Information

Investigator In Charge (IIC):	Murray, Anthony
Additional Participating Persons:	Roger O Kenny; Federal Aviation Administration; Denver, CO
Original Publish Date:	March 30, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=57072