Aviation Investigation Final Report

Location:	Bessemer, Alabama	**Accident Number:**	MIA02LA070
Date & Time:	March 24, 2002, 17:25 Local	**Registration:**	N7490F
Aircraft:	Hughes 269C	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

At the successful completion of one practice straight-in autorotation to the grass area between the runway and taxiway, terminating with a power-on three foot hover, the CFI asked the student to repeat the same maneuver. On the second attempt, the student over controlled aft cyclic and caused a tail rotor strike before the CFI could recognize and counter the student's abrupt control input. The rotorcraft entered an uncontrolled right yaw until the landing skid caught the terrain, and rolled over on its right side. The student and CFI evacuated the rotorcraft out the left door, unhurt.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the flight instructor to adequately monitor the student's rotorcraft control, resulting in an abrupt cyclic input causing a tail rotor strike of the terrain while entering a hover, and the resulting rollover during an uncontrolled descent.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: HOVER - IN GROUND EFFECT

Findings
1. AIRCRAFT CONTROL - ABRUPT - DUAL STUDENT
2. (C) MONITORING - INADEQUATE - PILOT IN COMMAND(CFI)

3. (C) ROTOR SYSTEM,TAIL ROTOR BLADE - BLADE STRIKE

Occurrence #2: ROLL OVER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

On March 24, 2002, about 1725 central standard time, a Hughes HU-269C, N7490F, registered to a private individual, operating as a Title 14 CFR Part 91 instructional flight, crashed on the Bessemer Airport, Bessemer, Alabama. Visual meteorological conditions prevailed and no flight plan was filed. The rotorcraft sustained substantial damage, and the flight instructor and student were not injured. The flight originated about 25 minutes before the accident.

According to the instructor, the student was practicing power off autorotations to a power on recovery, terminating in a 3-foot hover over a grassy area between runway 23 and the taxiway. On this particular autorotation, the student did not apply power to accomplish the recovery, and the CFI brought in the power to salvage the maneuver. The student applied abrupt back cyclic, and the tail rotor struck the ground, even though the CFI was riding the cyclic controls with the student. Following the tail rotor strike, the rotorcraft started spinning to the right, the right landing skid dug into the terrain, and the rotorcraft rolled over on its right side. There were no malfunctions of the rotorcraft or its components involved.

According to an FAA inspector, the student induced the tail rotor strike by over controlling the cyclic control in the aft direction. The responsibility for the maintenance of control rests with the CFI, who allowed the maneuver to progress to a point that possibly exceeded his ability to identify and safely recover.

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	53,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	
Instructor Rating(s):	Airplane single-engine; Helicopter; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	May 29, 2001
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	January 5, 2002
Flight Time:	1858 hours (Total, all aircraft), 535 hours (Total, this make and model), 1778 hours (Pilot In Command, all aircraft), 26 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Student pilot Information

Certificate:	Student	**Age:**	24,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	November 15, 2001
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	42 hours (Total, all aircraft), 41 hours (Total, this make and model), 12 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Hughes	**Registration:**	N7490F
Model/Series:	269C	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	570596
Landing Gear Type:	Skid	**Seats:**	3
Date/Type of Last Inspection:	February 23, 2002 Annual	**Certified Max Gross Wt.:**	2050 lbs
Time Since Last Inspection:	5.2 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	7602.4 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	HIO-360 D1A
Registered Owner:	John R. McDonald	**Rated Power:**	190 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:	RotorTech Aviation, Inc.	**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	EET,584 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	17:53 Local	**Direction from Accident Site:**	145°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	170°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.01 inches Hg	**Temperature/Dew Point:**	20°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Bessemer, AL (EKY)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class E

Airport Information

Airport:	Bessemer EKY	**Runway Surface Type:**	Asphalt
Airport Elevation:	700 ft msl	**Runway Surface Condition:**	Dry;Vegetation
Runway Used:	23	**IFR Approach:**	None
Runway Length/Width:	5700 ft / 100 ft	**VFR Approach/Landing:**	Simulated forced landing

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	33.312778,-86.926109

Administrative Information

Investigator In Charge (IIC):	Stone, Alan
Additional Participating Persons:	Edward Jezska; FSDO FAA; Birmingham, AL
Original Publish Date:	August 28, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=54388

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