National Transportation Safety Board
Aviation Accident Final Report

Location:	Cullman, AL	**Accident Number:**	GAA16CA363
Date & Time:	07/01/2016, 1510 CDT	**Registration:**	N9658F
Aircraft:	HUGHES 269C	**Aircraft Damage:**	Substantial
Defining Event:	Abnormal runway contact	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

The helicopter flight instructor reported that the commercial pilot rated/helicopter flight instructor candidate receiving instruction was practicing autorotations with power recovery to the runway; during a practice 180 degree autorotation, the flight instructor candidate executed the landing flare too low to the ground resulting in a tail rotor strike. The flight instructor further reported that he took the controls and landed the helicopter after it had yawed, un-commanded to the right, about 180 degrees.

The helicopter sustained substantial damage to the vertical stabilizer and tail rotor drive assembly.

The flight instructor reported that there were no preimpact mechanical failures or malfunctions with the airframe or engine that would have precluded normal operation.

The FAA Helicopter Flying Handbook FAA-H-8083-21A (2012) discusses procedures for autorotation and states in part:

Care must be taken in the execution of the flare so that the cyclic control is neither moved rearward so abruptly that it causes the helicopter to climb nor moved so slowly that it does not arrest the descent, which may allow the helicopter to settle so rapidly that the tail rotor strikes the ground... extreme caution should be used to avoid an excessive nose high and tail low attitude below 10 feet. The helicopter must be close to the landing attitude to keep the tail rotor from contacting the surface.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The helicopter flight instructor candidate's improper execution of the autorotation, resulting in abnormal ground contact and subsequent damage to the vertical stabilizer and tail rotor drive assembly.

Findings

Aircraft	Landing flare - Not attained/maintained (Cause)
Personnel issues	Decision making/judgment - Student pilot (Cause) Aircraft control - Student pilot (Cause)

Factual Information

History of Flight

Autorotation	Attempted remediation/recovery
Landing-flare/touchdown	Abnormal runway contact (Defining event)
Autorotation	Loss of control in flight Hard landing

Flight Instructor Information

Certificate:	Flight Instructor; Commercial	**Age:**	52, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 2 With Waivers/Limitations	**Last Medical Exam:**	04/17/2016
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	04/16/2015
Flight Time:	(Estimated) 1062 hours (Total, all aircraft), 578 hours (Total, this make and model), 901 hours (Pilot In Command, all aircraft), 46 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Student Pilot Information

Certificate:	Commercial	**Age:**	34, Male
Airplane Rating(s):	None	**Seat Occupied:**	Right
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 2 Without Waivers/Limitations	**Last Medical Exam:**	12/30/2015
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 240 hours (Total, all aircraft), 215 hours (Total, this make and model), 194 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 16 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	HUGHES	**Registration:**	N9658F
Model/Series:	269C	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	210090
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	03/20/2016, 100 Hour	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	8897.3 Hours	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	HIO-360-D1A
Registered Owner:	WALLACE STATE COLLEGE	**Rated Power:**	190 hp
Operator:	WALLACE STATE COLLEGE	**Air Carrier Operating Certificate:**	Pilot School (141)

Meteorological Information and Flight Plan

Observation Facility, Elevation:	KHSV, 624 ft msl	**Observation Time:**	1953 UTC
Distance from Accident Site:	23 Nautical Miles	**Condition of Light:**	Day
Direction from Accident Site:	9°	**Conditions at Accident Site:**	Visual Conditions
Lowest Cloud Condition:	Scattered / 6500 ft agl	**Temperature/Dew Point:**	34°C / 16°C
Lowest Ceiling:		**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	8 knots, 290°	**Visibility (RVR):**	
Altimeter Setting:	29.99 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Cullman, AL (CMD)	**Type of Flight Plan Filed:**	None
Destination:	Cullman, AL (CMD)	**Type of Clearance:**	None
Departure Time:	1430 CDT	**Type of Airspace:**	Class G

Airport Information

Airport:	CULLMAN RGNL-FOLSOM FIELD (CMD)	**Runway Surface Type:**	Asphalt
Airport Elevation:	969 ft	**Runway Surface Condition:**	Dry
Runway Used:	02	**IFR Approach:**	None
Runway Length/Width:	5500 ft / 100 ft	**VFR Approach/Landing:**	Simulated Forced Landing

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None		

Administrative Information

Investigator In Charge (IIC):	Kathryn R Benhoff	**Adopted Date:**	08/03/2016
Additional Participating Persons:	Dale White; FAA; Birmingham, AL		
Publish Date:	08/03/2016		
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=93552		