Aviation Investigation Final Report

Location:	McMinnville, Oregon	**Accident Number:**	GAA19CA226
Date & Time:	April 26, 2019, 16:15 Local	**Registration:**	N367PA
Aircraft:	Guimbal Cabri	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control on ground	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The pilot reported that the purpose of the training flight was to complete multiple simulated, engine failure autorotations without a power recovery (full-down autorotation). After he completed his first right, 180º turn, full-down autorotation, the airspeed was "too slow." He added that the instructor told him to maintain more speed during the right turn of his second attempt, and the pilot focused on maintaining more airspeed, but the descent rate increased "due to the speed." The pilot added that, after he completed the right turn and aligned with the runway centerline, he felt that the airspeed was fast, so he flared to reduce the ground speed and increase the main rotor rpm. However, the helicopter started to sink during the flare, so due to the low altitude, the pilot leveled the helicopter to prevent a tail strike. The helicopter touched down on its skids with "substantial" ground speed and veered slightly right. The pilot applied full left cyclic and pedal input, but the helicopter continued to veer right. The helicopter exited the runway and rolled over on its left side. The fuselage and main rotor blades were substantially damaged. The pilot reported that there were no preaccident mechanical failures or malfunctions with the helicopter that would have precluded normal operation.

The flight instructor reported that the 180º right turn aligned the helicopter with the runway centerline but at a lower altitude than was desirable because it prevented the pilot from conducting a normal flare "as the tail would have struck the runway." He added that, a normal flare before touchdown in a full-down autorotation would result in a 30º nose-up attitude, but the pilot was only able to achieve about a 10º nose-up attitude "for fear of damaging the tail."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper landing flare during a turning, full-down autorotation, which resulted in a lower-than-normal rotor rpm, a faster-than-normal ground run speed, and the subsequent loss of directional control, a runway excursion, and a roll-over. Contributing to the accident was the flight instructor's delayed remedial action.

Findings

Aircraft	Landing flare - Not attained/maintained
Personnel issues	Aircraft control - Student/instructed pilot
Aircraft	Prop/rotor parameters - Not attained/maintained
Aircraft	Directional control - Not attained/maintained
Personnel issues	Delayed action - Instructor/check pilot

Factual Information

History of Flight

Landing-flare/touchdown	Simulated/training event
Landing-flare/touchdown	Abnormal runway contact
Landing-flare/touchdown	Loss of control on ground (Defining event)
Landing-flare/touchdown	Attempted remediation/recovery
Landing-flare/touchdown	Runway excursion
Landing-flare/touchdown	Roll over

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	28,Male
Airplane Rating(s):	None	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	4-point
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	Yes
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	May 21, 2018
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	February 15, 2019
Flight Time:	(Estimated) 728.9 hours (Total, all aircraft), 457.8 hours (Total, this make and model), 625.4 hours (Pilot In Command, all aircraft), 113.1 hours (Last 90 days, all aircraft), 55.2 hours (Last 30 days, all aircraft), 3.9 hours (Last 24 hours, all aircraft)		

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	51,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	February 20, 2019
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	April 7, 2019
Flight Time:	(Estimated) 3359.3 hours (Total, all aircraft), 2189 hours (Total, this make and model), 3303 hours (Pilot In Command, all aircraft), 114 hours (Last 90 days, all aircraft), 53 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Guimbal	**Registration:**	N367PA
Model/Series:	Cabri G2	**Aircraft Category:**	Helicopter
Year of Manufacture:	2015	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1108
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	April 26, 2019 Continuous airworthiness	**Certified Max Gross Wt.:**	1543 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	1733.3 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-360-J2A
Registered Owner:	Precision Flight Training Inc	**Rated Power:**	145 Horsepower
Operator:	Precision Flight Training Inc	**Operating Certificate(s) Held:**	Pilot school (141)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KMMV,159 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	22:53 Local	**Direction from Accident Site:**	70°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	180°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.19 inches Hg	**Temperature/Dew Point:**	19°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Mc Minnville, OR (MMV)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Mc Minnville, OR (MMV)	**Type of Clearance:**	None
Departure Time:	16:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Mc Minnville Muni MMV	**Runway Surface Type:**	Asphalt
Airport Elevation:	162 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	17	**IFR Approach:**	None
Runway Length/Width:	4340 ft / 75 ft	**VFR Approach/Landing:**	Simulated forced landing;Traffic pattern

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:**	45.194442,-123.136108(est)

Administrative Information

Investigator In Charge (IIC):	Nepomuceno, Eleazar
Additional Participating Persons:	Jon Bergstrom; FAA; Hillboro, OR
Original Publish Date:	August 27, 2020
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=99333