



Aviation Investigation Final Report

Location:	Hillsboro, Oregon	Accident Number:	WPR12LA212
Date & Time:	May 13, 2012, 14:54 Local	Registration:	N61482
Aircraft:	Schweizer 269C-1	Aircraft Damage:	Substantial
Defining Event:	Loss of control in flight	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

While conducting a series of off-airport landings, the pilot receiving instruction circled the area and initiated a second approach to the predetermined landing area. During the approach and hover, the flight instructor observed the engine and rotor rpms at the bottom of the green arc and advised the pilot to bring the engine rpm back to the top of the green arc. The pilot informed the flight instructor that they were at full throttle, and the flight instructor took control of the helicopter. After hovering for about 30 seconds, the flight instructor performed a left turn and initiated takeoff. As the helicopter transitioned through effective translational lift, the flight instructor observed the engine and rotor rpms drop further, and the helicopter began to descend. The flight instructor maneuvered the helicopter toward a level road; however, the helicopter landed on sloping terrain and the tail rotor struck the ground. Postaccident examination of the helicopter revealed no mechanical malfunctions or failures that would have precluded normal operation. The engine was subsequently successfully started and run, with no anomalies noted. It is likely that if the instructor had landed the helicopter after taking control from the pilot receiving instruction, he would have been able to increase the engine and rotor rpms back to the top of the green arc and then make a successful takeoff.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight instructor's improper decision to take off from a hover with low rotor rpm.

Findings

Aircraft	Powerplant parameters - Not attained/maintained
Aircraft	Prop/rotor parameters - Not attained/maintained
Personnel issues	Incorrect action selection - Instructor/check pilot

Factual Information

History of Flight

Initial climb	Loss of control in flight (Defining event)
Landing-flare/touchdown	Collision with terr/obj (non-CFIT)

On May 13, 2012, about 1454, Pacific daylight time, a Schweizer 269C-1, N61482, sustained substantial damage during an off-airport landing near Hillsboro, Oregon. The helicopter was registered to and operated by Hillsboro Aviation Inc., Hillsboro, Oregon, under the provisions of Title 14 Code of Federal Regulations Part 91 as an instructional flight. The certified flight instructor (CFI) and private pilot receiving instruction were not injured. Visual meteorological conditions prevailed and a company flight plan was filed for the flight. The local flight originated from the Portland-Hillsboro Airport (HIO), Hillsboro, Oregon, about 1415.

In a written statement to the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), the CFI reported that after departure, he located an off-airport landing area at an elevation of about 1,000 feet mean sea level (msl) to practice off airport landings. After circling the area, the pilot receiving instruction initiated an approach to the landing area from the south. Following an uneventful landing and takeoff, the pilot receiving instruction circled the area and initiated a second approach from the west to a hover over the intended landing area. The CFI observed the engine revolutions per minute (RPM) at the bottom of the green arc, about 2,500, and asked the pilot receiving instruction to bring the RPMs back to the top of the arc. The pilot informed the CFI that they were at full throttle and the CFI took control of the helicopter. About 30 seconds later, the CFI turned the helicopter to the north and initiated takeoff. As the helicopter transitioned through effective translational lift (ETL), the CFI observed the RPMs drop to about 2,300 to 2,400 and the helicopter began to descend. The CFI maneuvered the helicopter towards a level road, however, was unable to make it. Subsequently, the helicopter landed on sloping terrain and the tail rotor struck the ground.

In a written statement to the NTSB IIC, the pilot receiving instruction reported that the first off-airport landing was performed to the north and was uneventful. The pilot initiated a second approach to the same landing area to the east and maneuvered the helicopter to an approximate 1 to 3 foot hover, when the CFI told him to roll on throttle as the engine RPM was at the bottom of the green arc. The pilot further reported that the CFI took over the controls, verified the gauges, and initiated a takeoff to the left. The CFI accelerated the helicopter over the ground as it sloped downhill, however, the engine RPMs were "drooping." The pilot stated that he last observed the engine RPM needle indicate between 2,200 and 2,300 RPM and could hear the engine "drooping." He added that as the CFI attempted to land the helicopter on a road, he heard the sound of the engine and rotor RPM dropping as the helicopter landed in a clear area just below the road.

Both the CFI and pilot receiving instruction did not recall if they heard a low rotor RPM warning or saw an illuminated warning light during the accident sequence.

Review of the Pilot's Operating Handbook for the accident make/model helicopter revealed that the green arc of the engine RPM is from 2,530 to 2,700 RPM.

Examination of the helicopter by a Federal Aviation Administration (FAA) inspector revealed that the helicopter sustained structural damage to the tailboom and the vertical stabilizer was separated. The FAA inspector stated that following recovery of the helicopter and a brief inspection of the engine, the engine was started and ran uneventfully with no anomalies noted.

Flight instructor Information

Certificate:	Commercial; Flight instructor	Age:	30, Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	Helicopter; Instrument helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 None	Last FAA Medical Exam:	January 27, 2012
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	October 18, 2010
Flight Time:	475 hours (Total, all aircraft), 48 hours (Total, this make and model), 381 hours (Pilot In Command, all aircraft), 55 hours (Last 90 days, all aircraft), 37 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Private	Age:	31, 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 With waivers/limitations	Last FAA Medical Exam:	July 15, 2011
Occupational Pilot:	No	Last Flight Review or Equivalent:	February 19, 2012
Flight Time:	121 hours (Total, all aircraft), 3 hours (Total, this make and model), 60 hours (Pilot In Command, all aircraft), 52 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Schweizer	Registration:	N61482
Model/Series:	269C-1	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal; Unknown	Serial Number:	0081
Landing Gear Type:		Seats:	2
Date/Type of Last Inspection:	May 9, 2012 Annual	Certified Max Gross Wt.:	1680 lbs
Time Since Last Inspection:	13 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	4105 Hrs as of last inspection	Engine Manufacturer:	LYCOMING
ELT:	Not installed	Engine Model/Series:	HO-360
Registered Owner:	HILLSBORO AVIATION INC	Rated Power:	180 Horsepower
Operator:	HILLSBORO AVIATION INC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	60°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.04 inches Hg	Temperature/Dew Point:	28°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Hillsboro, OR	Type of Flight Plan Filed:	Unknown
Destination:	Hillsboro, OR	Type of Clearance:	None
Departure Time:	14:15 Local	Type of Airspace:	

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:	45.540554,-122.949996(est)

Administrative Information

Investigator In Charge (IIC):	Cawthra, Joshua
Additional Participating Persons:	Tony Moore; Federal Aviation Administration; Hillsboro, OR
Original Publish Date:	August 13, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=83674

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