Aviation Investigation Final Report

Location:	CONCORD, California	**Accident Number:**	LAX99LA166
Date & Time:	April 30, 1999, 09:17 Local	**Registration:**	N6148V
Aircraft:	Schweizer 269C-1	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor and student were practicing straight-in autorotations with power recoveries. During the first four autorotations, the student was the primary manipulator of the controls. The student was initiating the flare too high and so the instructor told the student that they would do the next approach together with both of them on the controls. During the flare portion of the ensuing autorotation, the stinger struck the runway surface. The tail rotor then contacted the surface and the helicopter yawed 360 degrees to the right and came to rest approximately 100 feet where the tail rotor struck the runway. The main rotor severed the tail boom. The instructor reported that he believed that the student misinterpreted his instructions to mean that he (the instructor) would be making the primary control inputs, whereas, he had intended for the student to make control inputs to initiate the flare. He planned just to follow through on the controls to guide the student to flare a little lower than on the previous attempts. The flight instructor stated that the accident could have been prevented through 'better communication between student and instructor as to who is responsible for initiating a control input during all phases of flight and especially during critical phases.'

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The inadequate supervision of the student pilot by the flight instructor during the practice autorotation, which resulted in a delayed flare and the tail rotor contacting the ground. A factor was a misinterpreted communication between the flight instructor and student.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
1. AUTOROTATION - PERFORMED - FLIGHTCREW
2. (C) SUPERVISION - INADEQUATE - PILOT IN COMMAND(CFI)
3. (C) FLARE - DELAYED - FLIGHTCREW
4. (F) CREW/GROUP COORDINATION - INADEQUATE - PILOT IN COMMAND(CFI)

Factual Information

On April 30, 1999, at 0917 hours Pacific daylight time, a Schweizer 269C-1 helicopter, N6148V, impacted the ground and severed the tail boom during a practice autorotation landing at the Concord, California, airport. The helicopter, operated by Helicopter Adventures, Inc., Concord, sustained substantial damage. The commercial licensed flight instructor and student pilot were not injured. The local instructional flight was conducted under 14 CFR Part 91 and originated at the Concord airport about 0830. Visual meteorological conditions prevailed and no flight plan was filed.

The flight instructor reported that he and the student were practicing straight-in autorotations with power recoveries. During the first four autorotations, the student was the primary manipulator of the controls. The instructor reported that the student was initiating the flare too high, so he told the student that they would do the next approach together with both of them on the controls. During the flare portion of the autorotation, the stinger struck the runway surface. The tail rotor then contacted the surface and the helicopter began to yaw to the right. The instructor rolled the throttle off after about 90 degrees of right yaw and entered a hovering autorotation. The helicopter ultimately yawed 360 degrees to the right and the landing gear skids contacted the ground with the aircraft coming to rest approximately 100 feet from the point where the tail rotor struck the runway. The main rotor severed the tail boom.

The flight instructor stated that he had intended for the student to initiate the flare, and he planned just to follow through on the controls to guide him to flare a little lower than on the previous attempts. He reported that he believes that the student interpreted his instructions to mean that he (the instructor) would be making the primary inputs. The flight instructor reported that the accident could have been prevented through "better communication between student and instructor as to who is responsible for initiating a control input during all phases of flight and especially during critical phases."

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	24,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	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	November 23, 1998
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	385 hours (Total, all aircraft), 310 hours (Total, this make and model), 340 hours (Pilot In Command, all aircraft), 130 hours (Last 90 days, all aircraft), 33 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Schweizer	**Registration:**	N6148V
Model/Series:	269C-1 269C-1	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	0086
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	April 28, 1999 100 hour	**Certified Max Gross Wt.:**	1750 lbs
Time Since Last Inspection:	6 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	456 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	HO-360-C1A
Registered Owner:	HELICOPTER ADVENTURES INC.	**Rated Power:**	180 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	CCR ,23 ft msl	**Distance from Accident Site:**	
Observation Time:	09:08 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	20 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	17°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(CCR)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	08:30 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	BUCHANAN CCR	**Runway Surface Type:**	Asphalt
Airport Elevation:	23 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**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:**	37.9999,-122.030647(est)

Administrative Information

Investigator In Charge (IIC):	Parker, Richard
Additional Participating Persons:	RAY MURPHY; OAKLAND , CA
Original Publish Date:	November 30, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=46258