Aviation Investigation Final Report

Location:	Norfolk, Virginia	**Accident Number:**	NYC04LA142
Date & Time:	June 15, 2004, 18:20 Local	**Registration:**	N2065T
Aircraft:	Schweizer 269C	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The student pilot was conducting his third supervised solo flight, and had completed two takeoffs and landings. During his third landing attempt, after the helicopter contacted the ground, it began to vibrate violently. The student pilot was not able to stop the vibration, before the helicopter began to break apart. The accident was witnessed by the student pilot's flight instructor, who stated he utilized a hand-held radio to tell the student to pick up the helicopter, in order to recover. Examination of the landing skid dampers revealed that they were improperly charged. The helicopter had been operated for 371 hours since it's most recent annual inspection, which was performed about 6 months prior to the accident. The helicopter had been operated for 85 hours since it's most recent 100-hour inspection. The student pilot had accumulated 22 hours of total flight experience, all in the same make and model as the accident helicopter.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The student pilot's failure to maintain control of the helicopter, which resulted ground resonance. Contributing to the accident was the improperly serviced landing gear dampers.

Findings

Occurrence #1: LOSS OF CONTROL - ON GROUND/WATER
Phase of Operation: LANDING

Findings
1. (F) LANDING GEAR,MAIN GEAR SHOCK ABSORBING STRUT - IMPROPERLY SERVICED
2. (C) GROUND RESONANCE - ENCOUNTERED
3. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

On June 15, 2004, about 1820 eastern daylight time, a Schweizer 269C, N2065T, was substantially damaged while landing at Hampton Roads Executive Airport, Norfolk, Virginia. The certificated student pilot was not injured. Visual meteorological conditions prevailed and no flight plan had been filed for the solo instructional flight conducted under 14 CFR Part 91.

According to a Federal Aviation Administration (FAA) inspector, the student pilot was conducting his third supervised solo flight, and had completed two takeoffs and landings. During his third landing attempt, after the helicopter contacted the ground, it began to vibrate violently. The student pilot was not able to stop the vibration, before the helicopter began to break apart.

The accident was witnessed by the student pilot's flight instructor, who stated he utilized a hand-held radio to tell the student to pick up the helicopter, in order to recover.

Examination of the landing skid dampers conducted by Schweizer Aircraft Corporation revealed that they were improperly charged. Three of the four dampers had maximum travel compression values in excess of that specified for their part number. According to a Schweizer representative, the improperly charged dampers would have effected their attenuation capability.

The helicopter had been operated for 371 hours since it's most recent annual inspection, which was performed on December 23, 2003. The helicopter had been operated for 85 hours since it's most recent 100-hour inspection.

The student pilot had accumulated 22 hours of total flight experience, all in the same make and model as the accident helicopter.

According to FAA publication FAA-H-8083-21, "Rotorcraft Flying Handbook:"

"Ground resonance is an aerodynamic phenomenon associated with fully-articulated rotor systems. It develops when rotor blades move out of phase with each other and cause the rotor disc to become unbalanced. This condition can cause a helicopter to self-destruct in a matter of seconds....If the rpm is low, the corrective action to stop ground resonance is to close the throttle immediately and fully lower the collective to place the blades in low pitch. If the rpm is in the normal range, you should fly the helicopter off the ground, and allow the blades to automatically realign themselves. You can then make a normal touchdown...."

Student pilot Information

Certificate:	None	**Age:**	31,Male
Airplane Rating(s):	None	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	April 8, 2004
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	22 hours (Total, all aircraft), 22 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Schweizer	**Registration:**	N2065T
Model/Series:	269C	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	146
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	December 23, 2003 Annual	**Certified Max Gross Wt.:**	1900 lbs
Time Since Last Inspection:	371 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1404 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	HIO-360-D1A
Registered Owner:	Aerial Resources LLC.	**Rated Power:**	190 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	NGU,15 ft msl	**Distance from Accident Site:**	12 Nautical Miles
Observation Time:	18:55 Local	**Direction from Accident Site:**	45°
Lowest Cloud Condition:	Scattered / 4000 ft AGL	**Visibility**	7 miles
Lowest Ceiling:	Broken / 12000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.07 inches Hg	**Temperature/Dew Point:**	30°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Norfolk, VA (PVG)	**Type of Flight Plan Filed:**	None
Destination:	Norfolk, VA (PVG)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Airport Information

Airport:	Hampton Roads Executive PVG	**Runway Surface Type:**	Concrete
Airport Elevation:	23 ft msl	**Runway Surface Condition:**	Dry
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	36.781387,-76.448608

Administrative Information

Investigator In Charge (IIC):	Schiada, Luke
Additional Participating Persons:	A.C. McClain; FAA Richmond FSDO; Richmond, VA
Original Publish Date:	April 28, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=59472