



# Aviation Investigation Final Report

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<b>Location:</b>	Lake Charles, Louisiana	<b>Accident Number:</b>	CEN10CA352
<b>Date &amp; Time:</b>	June 26, 2010, 10:15 Local	<b>Registration:</b>	N191EH
<b>Aircraft:</b>	Aerospatiale AS350	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Hard landing	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

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## Analysis

The flight instructor was preparing the commercial-rated pilot for a check ride in the helicopter equipped with skid-type landing gear. During one of three running landings to a touchdown, the flight instructor was demonstrating a practice hydraulic failure running landing and the helicopter started to get into ground resonance as he initially touched down. The flight instructor increased power to become briefly airborne and continued the maneuver to a normal practice hydraulic failure running landing. After the ground resonance experience, the flight instructor continued the flight training session for an additional 45 minutes and conducted another hydraulic failure running landing, several slope landings, and five hovering autorotations. Two of the hovering autorotations were described as rough, with an undesired drift to the front left. The flight instructor then left the airport where they had been practicing and returned to their home base airport where they conducted two straight-in autorotations and three 180-degree autorotations, all to a power recovery. After shut-down procedures were completed the two pilots were surprised when they discovered substantial damage, with buckling around the full circumference of the forward part of the tail boom and a crack in the skin at the 6 o'clock position. The flight instructor stated that he thought the damage occurred when they were conducting hovering autorotations. The two pilots reported that they were not injured.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight instructor's inadvertent entry into ground resonance when demonstrating a hydraulic failure running landing, which resulted in substantial damage to the helicopter. Contributing to the accident was the pilot's and instructor pilot's failure to control the drift and rate of descent during the practice maneuvers.

## Findings

<b>Aircraft</b>	Descent rate - Not attained/maintained
<b>Aircraft</b>	Directional control - Not attained/maintained
<b>Personnel issues</b>	Incorrect action performance - Instructor/check pilot
<b>Personnel issues</b>	Lack of action - Pilot
<b>Personnel issues</b>	Lack of action - Instructor/check pilot

## Factual Information

### History of Flight

<b>Landing-flare/touchdown</b>	Abnormal runway contact
<b>Landing-flare/touchdown</b>	Ground resonance
<b>Other</b>	Aircraft inspection event
<b>Autorotation</b>	Hard landing (Defining event)
<b>Landing-landing roll</b>	Abnormal runway contact

### Flight instructor Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	30, Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Helicopter	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Helicopter; Instrument helicopter	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	January 13, 2010
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	October 4, 2009
<b>Flight Time:</b>	2383 hours (Total, all aircraft), 655 hours (Total, this make and model), 2258 hours (Pilot In Command, all aircraft), 45 hours (Last 90 days, all aircraft), 23 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	48, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane; Helicopter	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 With waivers/limitations	<b>Last FAA Medical Exam:</b>	May 12, 2010
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	4185 hours (Total, all aircraft), 6 hours (Total, this make and model)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Aerospatiale	<b>Registration:</b>	N191EH
<b>Model/Series:</b>	AS350 B2	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	2505
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	June 8, 2010 AAIP	<b>Certified Max Gross Wt.:</b>	4961 lbs
<b>Time Since Last Inspection:</b>	90 Hrs	<b>Engines:</b>	1 Turbo shaft
<b>Airframe Total Time:</b>	8980 Hrs as of last inspection	<b>Engine Manufacturer:</b>	TURBOMECA
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	Arriel 1
<b>Registered Owner:</b>	ERA Helicopters LLC	<b>Rated Power:</b>	732 Horsepower
<b>Operator:</b>	ERA Helicopters LLC	<b>Operating Certificate(s) Held:</b>	On-demand air taxi (135)
<b>Operator Does Business As:</b>	ERA Helicopters	<b>Operator Designator Code:</b>	U0GA

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	CWF, 17 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	09:50 Local	<b>Direction from Accident Site:</b>	360°
<b>Lowest Cloud Condition:</b>	Scattered / 2000 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.02 inches Hg	<b>Temperature/Dew Point:</b>	32°C / 21°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Lake Charles, LA (LCH)	<b>Type of Flight Plan Filed:</b>	Company VFR
<b>Destination:</b>	Lake Charles, LA (LCH)	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	09:36 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Chennault International Airpor CWF	<b>Runway Surface Type:</b>	Concrete
<b>Airport Elevation:</b>	17 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	15	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	10701 ft / 200 ft	<b>VFR Approach/Landing:</b>	Full stop;Simulated forced landing;Stop and go;Traffic pattern

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	30.206388,-93.139167(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Latson, Thomas
<b>Additional Participating Persons:</b>	Richard S Gordon; FAA Baton Rouge FSDO; Baton Rouge, LA
<b>Original Publish Date:</b>	December 20, 2010
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	This accident report documents the factual circumstances of this accident as described to the NTSB.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=76459">https://data.nts.gov/Docket?ProjectID=76459</a>

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).