



# Aviation Investigation Final Report

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<b>Location:</b>	Showlow, Arizona	<b>Accident Number:</b>	WPR14CA101
<b>Date &amp; Time:</b>	January 21, 2014, 16:35 Local	<b>Registration:</b>	N51683
<b>Aircraft:</b>	ENSTROM HELICOPTER CORP 280C	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of control in flight	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

The pilot reported that just after takeoff he hovered the helicopter about two feet above the ground before starting a northwesterly takeoff run over an area of grass-covered, uneven terrain. The pilot noted that during the takeoff run, the main rotor RPM began to decay, so he added engine throttle to correct for the RPM decline. The helicopter subsequently descended and during touchdown, the left main landing gear skid collapsed. The helicopter rolled to the left, and the main rotor blades struck the ground. The helicopter sustained substantial damage to the main rotor drive system, tail boom, and fuselage.

The pilot reported that the estimated gross weight of the helicopter at takeoff was 2,300 pounds, or approximately 50 pounds under the maximum gross weight of 2,350 pounds. The density altitude was calculated to be 7,015 feet mean sea level.

The pilot reported no preaccident mechanical malfunctions or failures with the helicopter that would have precluded normal operation.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's failure to maintain main rotor RPM during the takeoff run in a high density altitude environment, which resulted in a loss of aircraft control and collision with terrain.

## Findings

<b>Aircraft</b>	Prop/rotor parameters - Not attained/maintained
<b>Personnel issues</b>	Aircraft control - Pilot
<b>Environmental issues</b>	Sloped/uneven terrain - Contributed to outcome
<b>Environmental issues</b>	High density altitude - Effect on operation

## Factual Information

### History of Flight

<b>Takeoff</b>	Loss of control in flight (Defining event)
<b>Takeoff</b>	Loss of lift

### Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	47
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	None
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Helicopter	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	January 21, 2013
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	October 23, 2013
<b>Flight Time:</b>	1171 hours (Total, all aircraft), 2 hours (Total, this make and model), 1090 hours (Pilot In Command, all aircraft), 72 hours (Last 90 days, all aircraft), 14 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	ENSTROM HELICOPTER CORP	<b>Registration:</b>	N51683
<b>Model/Series:</b>	280C C	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>	1977	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	1110
<b>Landing Gear Type:</b>	N/A; High skid	<b>Seats:</b>	
<b>Date/Type of Last Inspection:</b>	July 23, 2013 Annual	<b>Certified Max Gross Wt.:</b>	2350 lbs
<b>Time Since Last Inspection:</b>	8 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1285 Hrs at time of accident	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	H10-360 SER
<b>Registered Owner:</b>	John J Karel	<b>Rated Power:</b>	205 Horsepower
<b>Operator:</b>	Jeffery A. Steele	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>	Air West Academy	<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KSOW,6415 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	23:35 Local	<b>Direction from Accident Site:</b>	202°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	6 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	10°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.31 inches Hg	<b>Temperature/Dew Point:</b>	11°C / -12°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Showlow, AZ (SOW)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	GLENDALE, AZ (GEU)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	SHOW LOW RGNL SOW	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	6415 ft msl	<b>Runway Surface Condition:</b>	Rough;Vegetation
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 None	<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>	34.264446,-110.007774

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Jones, Patrick
<b>Additional Participating Persons:</b>	Kenton P Fenning; Federal Aviation Administration; Scottsdale, AZ
<b>Original Publish Date:</b>	June 5, 2014
<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=88697">https://data.nts.gov/Docket?ProjectID=88697</a>

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