



# Aviation Investigation Final Report

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<b>Location:</b>	Gaston, Oregon	<b>Accident Number:</b>	WPR14CA280
<b>Date &amp; Time:</b>	July 3, 2014, 08:10 Local	<b>Registration:</b>	N684PC
<b>Aircraft:</b>	Bell 47G	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of control in flight	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 137: Agricultural		

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## Analysis

The pilot stated that the purpose of the flight was to perform a mosquito abatement aerial application. With the helicopter parked adjacent to the pond where the application was to occur, the helicopter ground crew installed a bucket and related dispersement equipment. They attached the hydraulic lines and straps, which were designed to connect in such a manner that they could be disconnected by the pilot in an emergency situation. The ground crew and pilot verified that the emergency features functioned properly and adjusted the hydraulic pressure. The bucket, located about two feet in front of the helicopter, was filled and the ground crew cleared the pilot for takeoff.

The pilot raised the collective control and set his focus on a mirror affixed to the left skid in an effort to assess the bucket's height. As the helicopter lifted off, it lurched forward and, in response, the pilot applied aft cyclic. Despite the pilot's attempts, the helicopter continued to uncontrollably move forward and then assumed a nose-down attitude. The helicopter collided with terrain and rolled onto the left side substantially damaging the fuselage. Upon egressing the helicopter, the lead crew member showed the pilot that the hydraulic line was tangled around the right skid. The other crew members said that they observed the hose on the skid during taking off but, due to their vantage point, were unable to signal the pilot.

The pilot stated that the accident could have been prevented if he had raised the collective slower. He further added that there were no pre impact mechanical malfunctions or failures 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 inability to maintain control of the helicopter as a result of a hydraulic hose becoming entangled around the right skid.

### Findings

<b>Personnel issues</b>	Aircraft control - Pilot
<b>Environmental issues</b>	Ground equipment - Effect on equipment
<b>Aircraft</b>	Pitch control - Not attained/maintained

## Factual Information

### History of Flight

<b>Takeoff</b>	Roll over
<b>Maneuvering-hover</b>	Loss of control in flight (Defining event)

### Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	31
<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>	
<b>Instructor Rating(s):</b>	Helicopter	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	February 18, 2014
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	March 9, 2014
<b>Flight Time:</b>	962 hours (Total, all aircraft), 128 hours (Total, this make and model), 924 hours (Pilot In Command, all aircraft), 104 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Bell	<b>Registration:</b>	N684PC
<b>Model/Series:</b>	47G 3B2	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>	1969	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	6744
<b>Landing Gear Type:</b>	N/A; Skid	<b>Seats:</b>	3
<b>Date/Type of Last Inspection:</b>	June 18, 2014 Annual	<b>Certified Max Gross Wt.:</b>	3200 lbs
<b>Time Since Last Inspection:</b>	35 Hrs	<b>Engines:</b>	1 Turbo shaft
<b>Airframe Total Time:</b>	7198 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Rolls Royce
<b>ELT:</b>	Installed	<b>Engine Model/Series:</b>	C20B
<b>Registered Owner:</b>	WESTERN HELICOPTER SERVICES INC	<b>Rated Power:</b>	420 Horsepower
<b>Operator:</b>	WESTERN HELICOPTER SERVICES INC	<b>Operating Certificate(s) Held:</b>	Rotorcraft external load (133), On-demand air taxi (135), Agricultural aircraft (137)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Few / 4000 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 4500 ft AGL	<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>		<b>Temperature/Dew Point:</b>	
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Gaston, OR	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Gaston, OR	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 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>	1 None	<b>Latitude, Longitude:</b>	45.606388,-122.892776(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Keliher, Zoe
<b>Additional Participating Persons:</b>	Bruce Stephanson; Federal Aviation Administration; Hillsboro, OR
<b>Original Publish Date:</b>	September 30, 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=89602">https://data.nts.gov/Docket?ProjectID=89602</a>

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